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CHAPTER 4
Management Direction

INTRODUCTION
A

The development of a Forest Land and Resource Management Plan (Forest Plan) occurs within the framework of regional and national Forest Service planning. The Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) sets the national direction for 191 million acres of National Forest lands.

The nine Forest Service Regions, in turn, disaggregate the national direction to the Forests within that Region. This distribution is based on detailed, integrated, site-specific information gathered at the Forest level. Each Forest Plan then validates or provides a basis for changing the direction disaggregated by the Region.

Substantial portions of the management direction for the Forest were directed by the Record of Decision (ROD) for the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl (FSEIS). The ROD with its attached Standards and Guidelines provides additional direction in the form of land allocations and associated goals, standards, and guidelines.

Direction from the ROD has been integrated with other Forest Plan management direction for the Shasta-Trinity National Forests in this Chapter. Additional background and descriptive information useful for understanding direction from the ROD can be found in the ROD with its attached Standards and Guidelines. This document is in the planning records for this Forest Plan.

Management direction for the Shasta-Trinity National Forests includes four integrated levels: (1) Forest-wide Direction, (2) Land allocations and standards and guidelines from the ROD, (3) Management Prescription Direction, and (4) Management Area Direction. The concepts of and direction for ecosystem management are woven into these four levels of management direction. The first level, Forest-wide direction, applies to the entire 2.1 million-acre Forests and carries out the intent of various laws, regulations, and policies. Levels two and three, ROD land allocations and Management Prescription Direction identify the resource activities that will be emphasized on specific types of land. The fourth, and most specific level, is Management Area Direction. It provides supplemental direction not specified in the other three levels. Management Area Direction is unique to selected areas of land.

Figure 4-1 displays the hierarchy of management direction. This direction applies to National Forest lands and not to private land within or near the National Forests.

Forest-wide Direction

Forest-wide direction includes: (1) Forest goals, (2) Forest objectives, including Forest-wide prescription assignment by acres, outputs and activities, and (3) Forest Standards and Guidelines. Forest goals state the management philosophy of the Forest Plan. Forest-wide prescription assignments allocate acreage to Management Prescriptions. Estimated outputs and activities quantify Forest-wide resource outputs and costs by decade. Forest Standards and Guidelines provide basic direction for implementation of management activities Forest-wide. Standards are not explicitly distinguished from guidelines; the language of each statement shows the degree, if any, of management discretion. They apply Forest-wide.

Management Prescriptions

Land Allocations and Standards and Guidelines from the Record of Decision (ROD) for Late-Successional Species Within the Range of the Northern Spotted Owl - This direction includes those allocations and standards adopted by the ROD, signed April 13, 1994. The direction replaced some Forest-wide standards that were contained in the Draft Forest Plan and provided additional standards to Management Prescriptions that tier to these broader allocations.

Management Prescription Direction

A Management Prescription assigns a management purpose to a particular kind of land (campgrounds, special area, timber management, etc.). Prescriptions specify management practices and standards and guidelines that apply to identifiable areas in addition to Forest Standards and Guidelines. These prescriptions further refine the direction from the ROD.

Management Area Direction

Management Area Direction establishes additional supplemental direction for specific units of land (Management Areas). It applies in addition to Forest Standards and Guidelines and Management Prescriptions to fit the unique characteristics of each Management Area. For purposes of this Plan, the Shasta-Trinity National Forests is divided into 22 Management Areas.

Site-Specific Projects

The management direction in this Forest Plan will be implemented through the development of watershed/ecosystem analysis. Key to this implementation process is the need for additional ecosystem analysis at the watershed level. This analysis is done under the umbrella of the Forest Plan and in compliance with the National Environmental Policy Act (NEPA). Watershed/ecosystem analysis will consider and disclose local issues, concerns, mitigation measures and effects not dealt with in this document. As further outlined under Forest Goals, much of this analysis will be conducted on a landscape level, and it will evaluate such consequences as cumulative effects, connectivity, and fragmentation. The analysis for site-specific projects will include collaboration with other agencies and the interested public. Activities and practices applied to the ground will be those that are consistent with the watershed level desired future condition (DFC) identified during the ecosystem planning process.

Laws/Regulations/Policies

The Shasta-Trinity National Forests will continue to be guided by laws, regulations, policies, Forest Service Manual direction and Handbook procedures. This Forest Plan supplements, but does not replace, the direction from these sources. The Plan generally does not restate this direction, except where it is necessary for clarification of an issue.

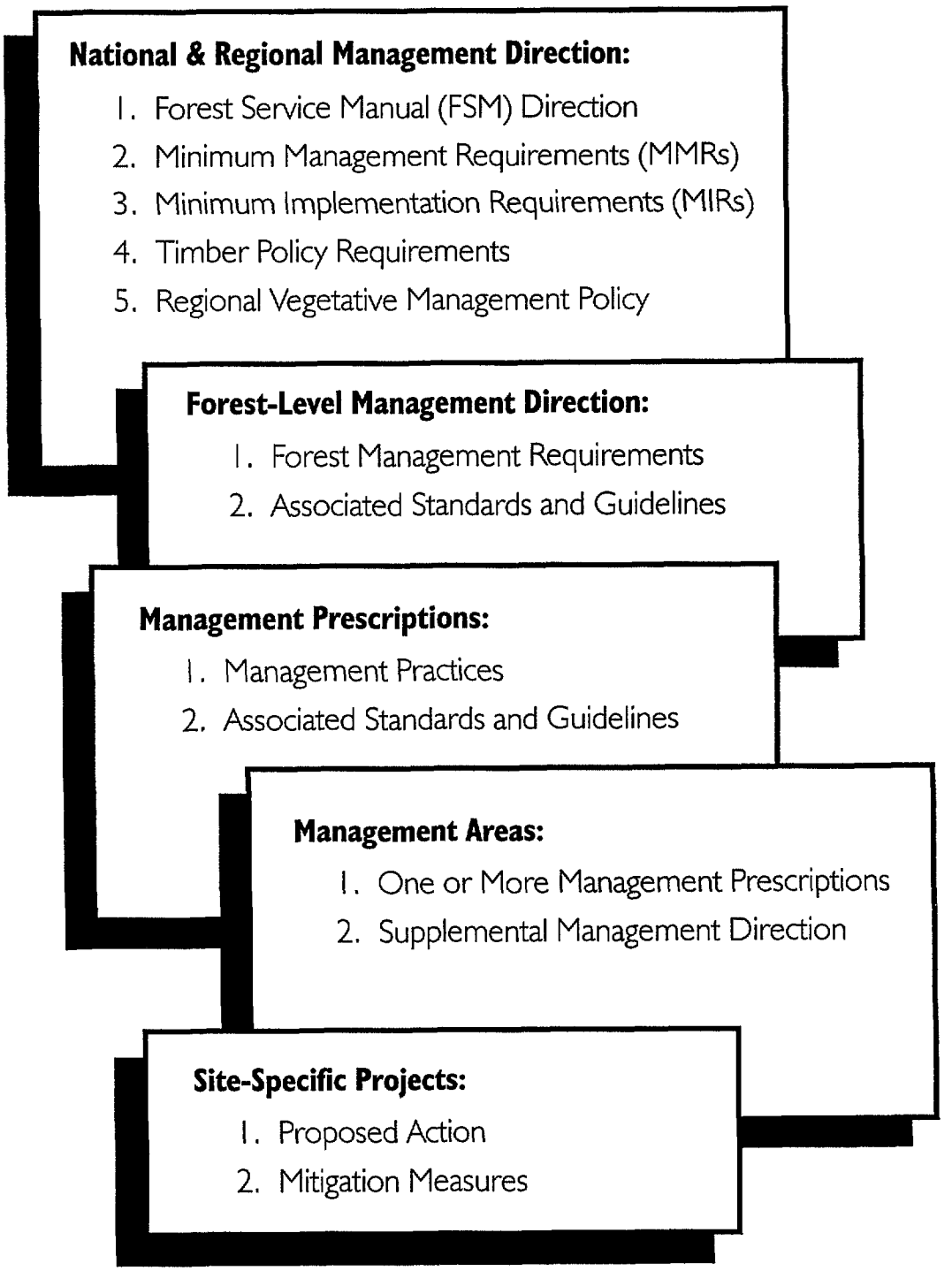
Deviations from Management Direction

Deviations from Forest-wide Direction, Management Prescriptions, and Management Area Direction may be appropriate occasionally due to site specific conditions or catastrophic events. However, there will be no deviation from direction based on laws or regulations. Any variances must be justified during project analysis and documented in the appropriate environmental document. Recurrent deviations could result in Plan amendments or revisions as specified in Chapter 1.

Chapter Contents

The purpose of this Chapter is to (1) discuss the resources that will be emphasized throughout the Shasta-Trinity National Forests; (2) establish goals and objectives for the goods and services that will be provided; and (3) prescribe direction for achieving specific goals and objectives. This management direction provides the framework for ecosystem planning and project implementation on the ground.

Figure 4-I
The Management Direction System on the Shasta-Trinity National Forests



FOREST GOALS

B

The overall management philosophy of the Shasta-Trinity National Forests is to realize integrated multiple resource land management in the context of Ecosystem Management. This goal is to be achieved through the implementation of an environmental agenda that has three major facets:

- **Preservation**—the protection of unique landscapes and their wild and scenic characteristics for the indefinite future.
- **Biodiversity**—at all ecosystem scales, the maintenance of a rich diversity of plants, fish, and wildlife.
- **Sustainable Development for People**—providing high quality recreational experiences, a long-term sustained yield of timber, forage and other resource products, and services consumed by society. This last facet will be compatible with the Preservation and Biodiversity goals.

Specific resource goals, as shown below, are the first step in describing the desired future condition of the Forests:

Air Quality

1. Maintain air quality to meet or exceed applicable standards and regulations.

Biological Diversity

2. Integrate multiple resource management on a landscape level to provide and maintain diversity and quality of habitats that support viable populations of plants, fish, and wildlife.

Biomass

3. Encourage the commercial use of biomass that is excess to silvicultural, ecological, wildlife, and personal needs, instead of burning the excess material. Reduce biomass to natural levels.

Chaparral

4. Manage the chaparral ecosystem to enhance wildlife habitat, livestock forage, watershed condition, and reduce wildfire hazard.

Heritage Resources

5. Preserve and interpret significant historic and prehistoric sites for the benefit of Forest visitors.
6. Provide archaeological research opportunities for the professional community.
7. Develop partnerships with Native American tribes and organizations to enhance those cultural resources that reflect their heritage.

Facilities

8. Manage the Forests' transportation system to facilitate resource management activities, protect wildlife, meet water quality objectives, and provide recreational access.
9. Provide and maintain those administrative facilities that effectively and safely serve the public and Forest Service work force.

Fire and Fuels

10. Restore fire to its natural role in the ecosystem when establishing the Desired Future Condition of the landscape.
11. Achieve a balance of fire suppression capability and fuels management investments that are cost effective and able to meet ecosystem objectives and protection responsibilities.

Fisheries

12. Emphasize sport fisheries as a major recreation activity by expanding recreational fisheries opportunities.
13. Emphasize the restoration of summer steelhead and spring-run chinook salmon habitat in the South Fork Trinity River Basin.
14. Provide for the protection, maintenance, and improvement of wild trout and salmon habitat.

Lands

15. Plan for long-range land ownership adjustments which support resource objectives.
16. Complete property line and corner surveys adjacent to private lands.
17. Work towards eliminating occupancy trespass.
18. Provide for continued use and new development of hydroelectric facilities.

Law Enforcement

19. Establish priority in law enforcement activities as follows:
    a. provide for employee and public safety;
    b. protect resources and property;
    c. provide for the accomplishment of management objectives; and
    d. prevent violation of laws and associated loss and damage.

Minerals

20. Provide for the orderly development of mineral resources.

Range

21. a. Manage rangeland vegetation to provide for healthy ecosystems and to make forage available on a sustainable basis for use by livestock and wildlife.

    b. Manage livestock grazing activities to meet desired ecosystem conditions to the extent that such activities do not adversely affect the attainment of the Aquatic Conservation Strategy or Riparian Reserves.

Recreation

22. Manage the Shasta-Trinity National Forests land base and resources to provide a variety of high quality outdoor recreation experiences.

23. Increase emphasis on areas of national significance such as Mt. Shasta, the Whiskeytown-Shasta-Trinity National Recreation Area (NRA), and the Wild and Scenic Rivers System.

24. Encourage use of the Forests by the disadvantaged, physically challenged, and minorities.

Riparian Areas

25. Maintain or improve riparian habitat.

Social/Economic

26. Cooperate in the research and development of rural economic opportunities for new forest products consistent with existing law, financial realities, and known environmental constraints.

27. Work with rural communities to help diversify their economic base.

28. Emphasize the development of partnership programs through coordination with interested public and agencies.

Soils

29. Maintain or improve soil productivity and prevent excessive surface erosion, mass wasting, and cumulative watershed impacts.

Special Areas

30. In response to research request, evaluate, allocate and establish suitable areas needed to complete a comprehensive Research Natural Area system.

31. Recommend the establishment of Special Interest Areas so that recognition can be given to unique features.

Threatened, Endangered, and Sensitive Species (Plants and Animals)

32. Monitor and protect habitat for Federally listed threatened and endangered (T&E) and candidate species. Assist in recovery efforts for T&E species. Cooperate with the State to meet objectives for State-listed species.

33. Manage habitat for sensitive plants and animals in a manner that will prevent any species from becoming a candidate for T&E status.

Timber

34. Implement practices designed to maintain or improve the health and vigor of timber stands, consistent with the ecosystem needs of other resources.

35. Provide a sustained yield of timber and other wood products to help support the economic structure of local communities and to supply regional and national needs.

36. Provide a sustained supply of firewood for personal use.

Visual Quality

37. Develop or expand opportunities for scenic drives and vista points.

38. Maintain a diversity of scenic quality throughout the Forests, particularly along major travel corridors, in popular dispersed recreation areas, and in highly developed areas.

Water

39. Maintain or improve water quality and quantity to meet fish habitat requirements and domestic use needs.

40. Maintain water quality to meet or exceed applicable standards and regulations.

Wilderness

41. Manage Wildernesses to meet recreational, scenic, educational, conservation, and historic uses while preserving wilderness values.

Wildlife

42. Meet the Forests' share of habitat objectives in State deer herd plans.

43. Meet habitat or population objectives established for management indicators.

44. Cooperate with Federal, State, and local agencies to maintain or improve wildlife habitat.

45. Maintain natural wildlife species diversity by continuing to provide special habitat elements within Forest ecosystems.

46. Take advantage of management opportunities to increase populations of game species including mule deer, black-tailed deer, elk, and turkey in balance with the ecosystem.

FOREST OBJECTIVES

C

The following tables show the planned Forest land-use allocations, commodity outputs, resource management activities, and operating costs that will move the Forests toward accomplishing the Forest goals.

Table 4-1 shows the Forest-wide acres allocated to each management prescription. **Table 4-2** lists the planned resource outputs and activities for decade one and potential resource outputs and activities for decades two through five.

DESIRED FUTURE CONDITION

D

The Desired Future Condition (DFC) of the Forests is embodied in the previously listed Forest Goals and Objectives. The DFC is further clarified by the standards and guidelines contained in the next two sections. Finally, a DFC is described for each Management Area. Management Area discussion appears at the end of this chapter.

Table 4-1
Acreage Allocation by Management Prescription

Prescription		Acreage	Percent of Forest
Congressionally Reserved Areas*			
V	Wilderness Management	**498,776**	**24%**
Late-Successional Reserves			
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	**531,520**	**25%**
Administratively Withdrawn Areas			
I	Unroaded Non-motorized Recreation	66,984	3.2%
II	Limited Roaded Motorized Recreation	59,040	2.8%
IV	Roaded, High Density Recreation	6,247	0.3%
X	Special Area Management	24,031	1.1%
XI	Heritage Resource Management	3,570	0.2%
	Subtotal	**159,872**	**7.6%**
Riparian Reserves			
IX	Riparian Management**	**274,308**	**13%**
Adaptive Management Areas			
III	Roaded Recreation	55,594	3%
VI	Wildlife Habitat Management	42,785	2%
VIII	Commercial Wood Products Emphasis	66,449	3%
	Subtotal	**164,828**	**8%**
Matrix			
III	Roaded Recreation	144,298	7%
VI	Wildlife Habitat Management	129,190	6%
VIII	Commercial Wood Products Emphasis	218,754	10%
	Subtotal	**492,242**	**23%**

* Acreage shown includes Wild and Scenic Rivers, Research Natural Areas, and Cultural Resource Areas within wilderness.

** All riparian areas will be managed according to this prescription, acreage is for Matrix and AMA only.

Table 4-2
Average Annual Outputs by Decade - Alternative PRF*

Resource Element	Base Year** 1989	'90 RPA Goals** 1	DECADE 1	2	3	4	5
Economics							
Total Budget (MM$)	40	-	41.8	44.1	45.6	47.2	49.7
Total Cost (MM$)	44	-	55.4	57.8	59.3	60.9	63.3
Facilities							
Transportation							
Trail Construction/Reconstruction (miles)	0/1	-	5/5	5/5	5/5	5/5	5/5
Road Construction (miles)	63	-	3	5	5	5	5
Road Reconstruction (miles)	73	-	22	22	20	20	21
Road System (miles)	6,500	-	5,700	4,900	4,900	4,900	4,900
Dams and Reservoirs (number)							
Forest Service	2	-	2	2	2	2	2
Other Federal	3	-	3	3	3	3	3
Other State/Local	1	-	1	1	1	1	1
Private	10	-	10	10	10	10	10
Administrative Sites (number)							
Forest Service Owned	24	-	26	26	26	26	26
Leased	2	-	0	0	0	0	0
Fire and Fuels							
Total Fuel Treatment (acres)	6,300	-	30,000	30,000	90,000	90,000	90,000
Ecosystem Management Related Treatment	1,500	-	26,500	26,500	86,500	86,500	86,500
Timber-Related Fuel Treatment	4,500	-	3,500	3,500	3,500	3,500	3,500
Expected Acres Burned by Wildfire			11,000	11,000	11,000	11,000	11,000
Intensity Class 1	32	-	55	55	55	55	55
Intensity Class 2	48	-	154	154	154	154	154
Intensity Class 3	774	-	330	330	330	330	330
Intensity Class 4	850	-	451	451	451	451	451
Intensity Class 5	3,345	-	4,686	4,686	4,686	4,686	4,686
Intensity Class 6	1,350	-	5,324	5,324	5,324	5,324	5,324
Fish							
Inland Fish Other Than T&E							
(M Pounds)	1,424	1,794	1,817	1,817	1,817	1,817	1,817
Anadromous Fish							
Commercial (M Pounds)	691	457	691	691	691	691	691
Sport (M Pounds)	163	142	353	353	353	353	353

* See the last page of this table for abbreviated terms and meanings.
** A base year of 1989 and the 1990 RPA program were used as instructed by the Regional Guide for the Pacific Southwest Region; revised 1990.

Table 4-2 (Continued)

Resource Element	Base Year** 1989	'90 RPA Goals** 1	DECADE 1	2	3	4	5
Fish (Continued)							
Direct Habitat Improvement							
Acres/Structures							
Inland Fish	15/25	-	30/90	30/90	30/90	30/90	30/90
Anadromous Fish (Commercial)	0/0	-	0/0	0/0	0/0	0/0	0/0
Anadromous Fish (Sport)	5/50	-	30/64	30/64	30/64	30/64	30/64
Thousand Fish User Days (MFUDs)							
Inland Fish	396	-	410	410	410	410	410
Anadromous Fish (Sport)	40	-	160	160	160	160	160
Human Resources							
Programs (Enrollees)	50	-	50	50	50	50	50
Lands and Minerals							
Land Acquisition (Acres)	6,996	-	1,500	1,500	1,500	1,500	1,500
Minerals (Operating Plans)	122	146	125	137	151	166	183
Range							
Grazing (M AMs)	12	12	8.3	8.3	8.3	8.3	8.3
Recreation							
Developed Public (MM RVDs)	.71		0.75	0.86	0.97	1.09	1.2
Developed Private (MM RVDs)	.49		0.51	0.59	0.68	0.75	0.83
Dispersed (MM RVDs)	2.56	*	2.9	3.4	3.9	4.5	5.3
Wilderness (MM RVDs)	.13		0.14	0.16	0.19	0.22	0.25
Open, Usable OHV Areas-Summer (Acres)	239.2	-	239175	239175	239175	239175	239175
Open, Usable OHV Areas-Winter (Acres)	176.2	-	176200	176200	176200	176200	176200
Roads and Trails							
Open Only to OHV Use-Summer (Miles)	0	-	0	0	0	0	0
Open Only to OHV Use-Winter (Miles)	0	-	0	0	0	0	0
Closed to OHV Use-Summer (Miles)	810	-	810	810	810	810	810
Closed to OHV Use-Winter (Miles)**	815	-	815	815	815	815	815
Timber							
Allowable Sale Quantity (MMCF)	28	-	12.3	12.3	12.3	12.9	13.6
Allowable Sale Quantity (MMBF)	184	-	82	82	82	86	90.4
Long Term Sustained Yield (MMCF)	-	-	15.5	15.5	15.5	15.5	15.5
Long Term Sustained Yield (MMBF)	-	-	103.3	103.3	103.3	103.3	103.3
Reforestation (Acres)	9,400		3,500	3,500	3,500	3,500	3,500
Timber Stand Improvement (Acres)	7,800	-	5,300	5,300	5,300	5,300	5,300

* The RPA goals include wildlife and fish user days (WFUDs). The Forest's figures depict dispersed recreation user Days only.

** Refers to seasonal closure and does not include trails, such as the Pacific Crest Trail (PCT), where OHV use is Prohibited.

Table 4-2 (Continued)

Resource Element	Base Year** 1989	'90 RPA Goals** 1	DECADE 1	2	3	4	5
Timber (Continued)							
Wood Products Other Than Sawtimber							
Firewood (M Cords)	21	-	25	30	30	30	30
Visual Quality							
Visual Quality Index	127.3	-	127.3	130.2	131.7	131.5	131.5
Water							
Quality (M Acre feet at standard)	5,448	-	5,438	5,436	5,436	5,433	5,437
Increased Quantity (M acre feet)***	5,450	-	-12	-14	-14	-17	-13
Watershed Improvement (Acres)	399	706	300	300	300	300	300
Wildlife							
Threatened, Endangered and Sensitive Species (TE&S)							
Bald Eagle (# managed pairs)	25	-	32	35	35	35	35
Goshawk (# pairs)	150	-	150	150	150	150	150
Peregrine Falcon (# managed pairs)	6	-	9	14	14	14	14
Spotted Owl (# pairs)	97	-	170	180	190	200	210
Other Than TE&S							
Deer (M animals)	62	-	62	62	62	62	62
Direct Habitat Improvement (MWUDs)							
All Species	2	-	44	51	59	69	61
Acres/Structures of Direct Habitat Improvement							
All Species	1360/35	-	5050/150	8550/180	8652/216	8652/260	8760/310
Wildlife User Days (M WUDs)							
Consumptive Species	282	338	282	282	282	282	282
Non-Consumptive Species	282	347	282	323	375	435	504
Total WUDs	564	-	608	656	716	786	847

*** The value for Decades 1-5 is the difference between the increased quantity, in Base Year 1989, and the projected quality water yield by decade. This is not an indicator of decreased water quality, only of the net increase/decrease of water yield.

Abbreviated Terms and Meanings for this Table.
M=Thousand MM=Million MMBF=Million Board Feet MMCF=Million Cubic Feet
OHV = Off-Highway Vehicle AMs = Animal Months
RVDs = Recreation Visitor Days
TE&S = Threatened, Endangered & Sensitive
WUDs = Wildlife User Days

STANDARDS AND GUIDELINES

E

The standards and guidelines are in four levels. Level 1 is the Forest-wide standards and guidelines that apply to the entire 2.1 million acre Shasta-Trinity National Forests. They were extracted from the ROD and developed as part of the Shasta-Trinity National Forest planning process. Levels 2 and 3 are the management prescriptions that are extracted from the ROD, and the management prescriptions that tier to the ROD allocations but were developed as part of the Shasta-Trinity Forest planning process. Level 4 is the Management Area Direction. Each level is more specific but consistent with the Forest Standards and Guidelines.

Criteria that may trigger the need to modify the standards and guidelines includes:

(1) loss of soil or vegetation resulting in reduced land productivity;

(2) degradation of air or water quality;

(3) adverse impacts on habitat for threatened, endangered, and sensitive species;

(4) adverse impacts on recreational uses, visual quality, and cultural resources;

(5) adverse impacts to others using the National Forests;

(6) new technological changes; and

(7) changes in objectives for managing the National Forests.

Forest-wide Standards and Guidelines (Level 1)

Forest-wide Standards and Guidelines come from two sources: (1) those derived from the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (ROD) which amended the Pacific Southwest Regional Guides; and (2) those developed as part of the Shasta-Trinity National Forest planning process.

Standards and Guidelines from the ROD that Apply Forest-wide

Existing Laws and Regulations

The standards and guidelines presented in this document supersede other direction except treaties, laws, and regulations unless that direction is more restrictive or provides greater benefits to late-successional forest related species. None of these standards and guidelines applies where they would be contrary to existing law or regulation, or where they would require the agencies to take actions for which they do not have authority.

Transition Standards and Guidelines

As described in the ROD, the following direction is adopted to provide for implementation of certain interim procedures in order to realize the goals and objectives of the management strategy while making project decisions with reasonable promptness that do not preclude long-term options or impair resources sought to be protected.

Watershed Analysis - In the initial years of implementation, the process for watershed analysis is expected to evolve to meet long-term goals described in these standards and guidelines. However, some projects proposed for the first few years of implementation are in areas that require watershed analysis prior to approval of the projects (i.e., Key Watersheds, Riparian Reserves, and inventoried roadless areas). In fiscal years 1994-96, watershed analysis done for these projects may be less detailed than analyses completed in later years. Regardless, analysis done during the initial years (fiscal years 1994-96) will comply with the following guidance:

- The goal of the analysis is to determine whether the proposed actions are consistent with the objectives of the standards and guidelines.
- Existing information will be used to the greatest extent possible, with new information collected, to the maximum practicable extent, to fill crucial data gaps.
- Analysis will address the entire watershed, though some areas may be analyzed at a lower level of precision, and the analysis of issues may be prioritized.
- Information from the analysis will flow into the NEPA documentation for specific projects, and will be used where practicable to facilitate Endangered Species Act and Clean Water Act compliance.
- Restoration opportunities will be identified.

As described elsewhere in these standards and guidelines, watershed analysis is an ongoing, iterative process. Watershed analyses will expand as appropriate to consider additional available information, changing conditions and potential effects associated with long-term management issues and needed actions.

Assessments for Late-Successional Reserves - Projects and activities within Late-Successional Reserves (including restoration, recreation, projects for public safety, thinning and salvage) may proceed in fiscal years 1994-96 using initial Late-Successional Reserve assessments done at a level of detail sufficient to assess whether the activities are consistent with the objectives of the Late-Successional Reserves.

Hierarchy of Standards and Guidelines

In some areas, land allocations overlap. Standards and Guidelines for Congressionally Reserved Areas must be met first. Second, Riparian Reserve Standards and Guidelines apply and are added to the standards and guidelines of other designated areas. For example, where Riparian Reserves occur within Late-Successional Reserves, the Standards and Guidelines of both designations apply. Key Watershed designations may overlay any of the allocations (Congressionally Reserved Areas, Late-Successional Reserves, Managed Late-Successional Areas, Adaptive Management Areas, Administratively Withdrawn Areas, or the Matrix). In this case, the standards and guidelines for the allocations apply, and the Key Watershed designation adds additional requirements. In all allocations, standards and guidelines in current Forest plans and draft plan preferred alternatives apply where they are more restrictive or provide greater benefits to late-successional forest related species.

Survey and Manage

These measures apply within all land allocations. However, the survey and manage provision for each species will be directed to the range of that species and the particular habitats that it is known to occupy within the range of the northern spotted owl. The "survey and manage" standard and guideline will provide benefits to amphibians, mammals, bryophytes, mollusks, vascular plants, fungi, lichens, and arthropods. Appendix R shows what species are covered by the survey and manage provision, and which of the following three categories is to be applied to each. The standard and guidelines contain three components, and priorities differ among them.

1. **Manage known sites**. Management of known species sites should receive the highest priority of these three categories. Efforts must be undertaken to acquire information on these known sites and to manage this information so that it is available to all project planners. An effective way to accomplish this is to compile the information in a GIS data base. Those efforts should be coordinated by the Regional Ecosystem Office, and should be completed expeditiously. When the information becomes available, it should be used in the design or modification of activities. Activities implemented in 1994 should use this information to the greatest degree possible. Activities implemented in 1995 and later must include provisions for these known sites. In most cases, the appropriate action will be protection of small sites, on the order of tens of acres. For some species, including some vascular plants, the appropriate action will include the use of specific management treatments such as prescribed fire. For rare and endemic fungus species, areas of 160 acres should be temporarily withdrawn from ground-disturbing activities around known sites until those sites can be thoroughly surveyed and site-specific measures prescribed. For one fungus species, *Oxyporous nobilissimus*, there are only six known sites and two of these do not currently have a protected status. Management areas of all useable habitat up to 600 acres are to be established around these two sites for the protection of those populations until the sites can be thoroughly surveyed and site-specific measures prescribed. The actions to protect *Oxyporous* must be undertaken immediately.

2. **Survey prior to ground-disturbing activities.** Measures to survey for species and manage newly discovered sites are to be phased-in over a somewhat longer time frame than the measures specified for currently known sites (see above). For some species, these efforts have been ongoing through rare and sensitive species programs. Where such efforts have been ongoing, they should continue. However, protocols have not been developed for surveys for all of these species, and the expertise needed to conduct them is not readily available in some cases. Efforts to design protocols and implement surveys should be started immediately. Where surveys are completed, the information gathered from them should be used to establish managed sites for species. Within the known or suspected ranges and within the habitat types or vegetation communities associated with the species, surveys for Del Norte, Larch Mountain, Shasta, Siskiyou Mountains, and Van Dyke's salamanders, and red tree voles, must precede the design of all ground-disturbing activities that will

be implemented in 1997 or later. Development of survey protocols for the other 71 species listed in Appendix R must begin in 1994 and proceed as soon as possible. These surveys must be completed prior to ground disturbing activities that will be implemented in Fiscal Year 1999 or later. Work to establish habitat requirements and survey protocols may be prioritized relative to the estimated threats to the species as reflected in the Supplemental EIS (SEIS). Management standards will be developed to manage habitat for the species on sites where they are located. These surveys may be conducted at a scale most appropriate to the species. For most species, this survey would start at the watershed analysis level with identification of likely species locations based on habitat. Those likely locations would then be thoroughly searched prior to implementation of activities. For other species, the identification of likely sites may be most appropriately done at the scale of individual projects. Surveys should be designed for maximum efficiency, focusing on the likely range and habitats of the target species. Multi-species surveys should be used wherever they would be most efficient. To the degree possible, surveys should be designed to minimize the number of site visits needed to acquire credible information. Survey protocols and proposed site management should be incorporated into interagency conservation strategies developed as part of ongoing planning efforts coordinated by the Regional Ecosystem Office.

3. **Extensive surveys**. Conduct extensive surveys for the species to find high-priority sites for species management. Specific surveys prior to ground disturbing activities are not requirements. Rather, the surveys will be done according to a schedule that is most efficient, and sites will be identified for protection at that time. This strategy entails some risk because some species sites may be disturbed prior to completion of surveys. It is recommended primarily for species whose characteristics make site and time-specific surveys difficult. For example, some fungi only produce fruiting bodies under specific climatic conditions, so finding their location may take several to many years. It would be most efficient to do broad surveys for these species during times of appropriate conditions rather than attempting annual, site-specific surveys. Surveys under this strategy must be underway by 1996. As with surveys described in item 2 above, surveys should be designed for efficiency, and standardized protocols should be developed.

Manage Recreation Areas to Minimize Disturbance to Species

This standard and guideline applies throughout all land allocations. It will benefit a number of fungi and lichen species whose known locations are predominantly within established recreation sites. This standard and guideline falls within the category of the Survey and Manage standard and guideline above, and species to be protected through this standard and guideline are among those shown in Appendix R at the end of this section.

Protect Sites From Grazing

This standard and guideline applies throughout all land allocations. This standard and guideline is designed to benefit mollusks and vascular plants. Known and newly discovered sites of these species will be protected from grazing by all practicable steps to ensure that the local populations of the species will not be impacted. Species to be protected through this standard and guideline are:

Mollusks: *Ancotrema voyanum, Monadenia fidelis klamathica, Monadenia fidelis ochromphalus, Pristiloma articum crateris, Fluminicola n.* sp. 1, *Fluminicola n.* sp. 11, *Fluminicola n.* sp. 19, *Fluminicola n.* sp. 20, *Fluminicola n.* sp. 3, *Fluminicola seminalis*

Vascular Plants: *Pedicularis howellii*

Standards and Guidelines Developed Through the Forest Planning Process that Apply Forest-wide

I. AIR QUALITY

a. Protect air quality while achieving land and resource management goals and objectives. Base line levels will be established, and available technology will be used to predict and monitor changes. Activities such as burning, which are under the Forests' control, will be coordinated with affected landowners and control agencies.

b. Identify, assess, and monitor significant air quality related values (AQRV) and sensitive indicators of those values in the Yolla Bolly-Middle Eel Wilderness in cooperation with the Mendocino National Forest.

c. Establish and maintain close coordination with Federal, State, and local officials in the research and application of new air quality standards particularly in relation to smoke and dust management.

d. Incorporate smoke management controls into the development of prescribed burn plans, and coordinate with local authorities.

2. BIOLOGICAL DIVERSITY

Natural Openings

a. Management of natural openings will be determined at the project level consistent with desired future conditions.

Cliffs, Caves, Taluses, Rock Outcrops

b. Manage these unique habitats on a site-by-site basis to protect their existing micro environments and the viability of dependent animal and plant species. Manage nearby water sources to perpetuate natural cave processes.

Snags

c. Over time, provide the necessary number of replacement snags to meet density requirements as prescribed for each ROD allocation and/or management prescription. Live, green culls and trees exhibiting decadence and/or active wildlife use are preferred.

Dead/Down Material

d. Maintain unburned dead/down material in the quantity prescribed for each land allocation and/or management prescription.

Seral Stages

e. Provide for and maintain at least five percent of each timber type/seral stage combination shown in **Table 4-3**. When determining timber type/seral stage conditions for project planning, follow the diversity flow chart in Appendix G of the Final EIS (FEIS). The entire area in each timber type should be used for this calculation. Both suitable and unsuitable timber lands should be used to meet these seral stage requirements. Determine specific arrangements (size, distribution, and location) of seral stages for each Management Area in order to meet species viability criteria as shown in Wildlife Habitat Relationship (WHR) models.

Hardwoods

f. Apply the following standards in existing hardwood types:

   (1) manage hardwood types for sustainability.

   (2) conversion to conifers will only take place to meet desired future ecosystem conditions.

g. Where hardwoods occur naturally within existing conifer types on suitable timber lands, manage for a desired future condition for hardwoods as identified during ecosystem analysis consistent with management prescription standards and guidelines. Retain groups of hardwoods over single trees.

Corridors

h. Provide connecting travel corridors for wildlife species, particularly late-successional dependent species, by using Riparian Reserves and silvicultural prescriptions.

3. BIOMASS

a. Incorporate biomass opportunities into ecosystem analysis and project proposals that meet ecosystem objectives, such as dead/down material for wildlife and ground cover for soil protection, and to reduce fuel loading to complement the natural fire regime. Develop interim measure to remove biomass where full ecosystem analysis has not been completed but where fuels/biomass build up threatens communities, reserves and key habitats.

b. Remove only biomass material that is in excess of that required to meet the standards for soil quality, wildlife diversity, and natural fire regimes.

4. BOTANY

Sensitive and Endemic Plants

a. Map, record, and protect essential habitat for known and newly discovered sensitive and endemic plant species until conservation strategies are developed.

b. Analyze the potential effects of all ground-disturbing projects on sensitive and endemic plants and their habitat. Mitigate project effects to avoid a decline in species viability at the Forest level.

c. Monitor the effects of management activities on sensitive and endemic plants. If monitoring re-

Table 4-3
Timber Type/Seral Stage Requirements

Minimum Desired Occur/ Percent	WHR* Seral Stages	Canopy Closure**/ Total Percent	dbh*** (inches)	Seral Stage Description
5	1	≤10	N/A	Grass/forb stage consisting of annual and perennial grasses and forbs, with or without scattered shrubs and seedlings.
5	2	≤10	N/A	Shrub/seedling/sapling stage consisting of mixed or pure stands up to 20 feet in height.
5	3a	10-39	5-21	Pole/medium tree stage including larger trees in the size range 20 to 50 feet in height.
5	3b 3c	40-69 ≥70	5-21 5-21	Pole/medium tree stage including larger trees in the size range 20 to 50 feet in height.
5	4a	10-39	21+	Large tree stage corresponding roughly to a late-successional classification. Trees generally exceed 50 feet in height except perhaps some of the oak types at lower elevations. The average age of the stands is generally over 110 years.
5	4b 4c	40-69 ≥70	21+ 21+	Large tree stage corresponding roughly to a late-successional classification. Trees generally exceed 50 feet in height except perhaps some of the oak types at lower elevations. The average age of the stands is generally over 110 years.
5	4c-older	≥70	21+	Multi-layered large tree stage with obvious signs of late-successional. At least 2.5 snags per acre and 20 tons of dead/down material should be present. Stands should contain at least 3 trees (alive or dead) per acre over 36 inches dbh. Dominant trees are over 180 years of age.

* Wildlife Habitat Relationship (WHR)

** All canopy layers above 10 feet in height (includes conifer and deciduous species) may be used in determining the total canopy closure. The overstory layer should make up at least 40 percent of the total canopy closure in 4b and 4c stands.

*** Diameter-at-breast height (dbh)

sults show a decline in species viability, alter management strategy.

d. Provide reports of sensitive plant populations to the California Natural Diversity Data Base (Department of Fish and Game [DFG]) annually.

e. Coordinate sensitive plant inventory and protection efforts with the DFG, the U.S. Fish and Wildlife Service, the Nature Conservancy, the California Native Plant Society, and other concerned agencies, organizations, and adjacent landowners.

f. Develop at least one conservation strategy per year.

g. Review the Forests' sensitive species list periodically. Recommend appropriate changes to the Regional Forester.

h. Protect type localities of sensitive and endemic plants for their scientific value.

5. CHAPARRAL

a. Coordinate the planning of chaparral treatment projects with adjacent private landowners and appropriate State and Federal agencies. Optimize multi-resource and multi-agency/owner benefits.

b. Manage selected chaparral lands to create a natural mosaic of vegetative conditions and/or age classes.

c. Assess brushfields for multi-resource management opportunities, and develop project plans for treatment. Selection of specific areas and the treatment methods used will be guided by the following criteria:

(1) The effectiveness of producing multi-resource benefits through modification of the specific vegetation associations;

(2) the cost effectiveness of the project;

(3) the degree of fire protection provided by conversion;

(4) the risk to watersheds; and

(5) the natural fire regime.

6. HERITAGE RESOURCES

a. Provide for Native American needs for collection and/or use of traditional resources.

b. Protect traditional Native American rights and practices (cf. P.L. 95-341) to ensure that access to sacred sites will continue and use will not be impaired.

c. Manage heritage resources, including "Archaeological Interest" - 36 CFR 296, not covered by Forest Standards and Guidelines or Prescription XI, according to the Shasta-Trinity National Forests' Manual Supplement to Forest Service Manual (FSM) 2361.

d. Heritage Resource inventory procedures will comply with the Supplement to FSM 2361. As discussed in the supplement, the intensity of the inventory would depend on how sensitive the project area is for heritage resources, and the extent and kind of project activities. For instance, an area known or thought to have many prehistoric archaeological sites, which will be logged with tractors, will then be inventoried completely with tightly spaced transects. On the other hand, a project involving little or no ground disturbance, located in an area where adjacent parcels have been surveyed without positive findings, might be surveyed only cursorily.

e. Evaluate heritage resources that might be effected by project activities for eligibility to the National Register of Historic Places (NRHP). This will be done in consultation with the State Historic Preservation Office as well as interested parties.

f. Identify sites that will require protection (e.g., by signing and/or flagging) prior to implementation of management activities adjacent to the site.

g. Sign Heritage Resources in areas of recreation use only if visitor use is impairing the site's values or if the site is to be interpreted.

h. Historic sites, unless assigned to Prescription XI, will not be enhanced or interpreted. They will be managed so that the site is not adversely affected and no hazard is caused to the public. Modifications to historic structures must be compatible with standards and guidelines issued by the Department of the Interior and the Advisory Council on Historic Preservation (ACHP).

i. Mitigate adverse effects to heritage resources that are eligible for the NRHP, according to direction issued by the Department of the Interior and the ACHP.

7. FACILITIES

a. Perform road maintenance activities to meet a variety of management objectives. Not all roads will be maintained every year due to the maintenance level assigned by management, use, and

other factors. Schedule road maintenance activities according to the following priorities: (1) to provide for user safety; (2) to meet contractual and legal obligations; (3) to protect natural resources; and (4) to provide an efficient transportation system.

b. Assign road maintenance levels to each system road or road segment based on traffic management and use objectives (see Appendix K). Maintain all roads to at least Maintenance Level 1.

c. Construct or reconstruct roads so that a stable road prism is established. This includes road cuts and fills and the road surface. Minimize sedimentation by employing construction practices such as (1) placing surfacing on the roadway; (2) establishing a vegetative cover on slopes; and (3) installing proper drainage structures.

d. Use a full range of vegetative management techniques along roads, trails, and transmission corridors with emphasis on nonchemical means.

e. Closures of roads and/or selected areas, to assist in management of the Forests' resources, may be made by regulatory and/or physical devices on the road, for the following purposes:

- to protect the road surface during the wet season so that maintenance and erosion are reduced;
- to protect wildlife and/or help meet wildlife management objectives;
- for safety, fire, and general administrative purposes; and
- for special closures per Code of Federal Regulations (CFR).

Make road closures according to pertinent regulations (i.e., 36 CFR 212.7 through 212.12 and 36 CFR 261.53 and 261.54.) In addition, adhere to 36 CFR 261.50 and 36 CFR 261.51, covering closure orders and the posting of those orders.

f. A public information/education program will accompany any new road closure program. Closure areas will be signed for the seasons and periods of closure. The reason for closure, the regulations providing for closure, and the responsible agencies will also be indicated.

g. Retain roads on the Forest transportation system that will be needed for future activities (beyond one season) such as forest health, timber management, fire protection, recreation management, mining, wildlife, and range. Analyze non-inventoried roads to determine whether they should be added to the transportation system or obliterated as time and funding allow.

h. Coordinate road improvement and maintenance projects with other Forests, State and local agencies, and cooperators, as needed.

i. Upgrade the surfacing on the Forests' road system as necessary to protect the road and other resource values.

j. Trails will be maintained as needed for specific management objectives. Erosion control and primary access will receive priority.

k. Trails that go through areas that will be disturbed by management activities may be temporarily rerouted and then restored as part of the activity cleanup.

l. Trails and trail bridges will be located, designed, constructed, and maintained so that they are suitable for the type of travel being served.

m. Consider volcanic, seismic, flood, and slope stability hazards in the location and design of administrative and recreation facilities.

n. Manage, construct, and maintain buildings and administrative sites to meet applicable codes and to provide the necessary facilities to support resource management.

o. Inspect dams and bridges at prescribed intervals and provide the maintenance necessary to keep them safe.

p. Monitor potable water sources and designated swimming areas according to the Safe Drinking Water Act and other regulatory health requirements.

8. FIRE AND FUELS

a. Wildland fires will receive an appropriate suppression response that may range from confinement to control. Unless a different suppression response is authorized in this Plan, or subsequent approved Plans, all suppression responses will have an objective of "control."

b. All wildland fires, on or threatening private land protected by agreement with the State of California, will receive a "control" suppression response.

c. Activity fuels that remain after meeting wildlife, riparian, soil, and other environmental needs will be considered surplus and a potential fire hazard. The amount and method of disposal will be determined in the ecosystem analysis.

d. Plan and implement fuel treatments emphasizing those treatments that will replicate fires natural role in the ecosystems.

e. Natural fuels will be treated in the following order of priority: (1) public safety; (2) high investment situations (structural improvements, powerlines, plantations, etc.); (3) known high fire occurrence areas; and (4) coordinated resource benefits, i.e., ecosystem maintenance for natural fire regimes.

f. Consider fuelbreak construction investments when they compliment Forest health/biomass reduction needs, very high and extensive resource values are at risk and to protect Forest communities.

g. Design fire prevention efforts to minimize human-caused wildfires commensurate with the resource values-at-risk.

9. FISHERIES

a. Develop an instream flow assessment program to determine fish needs and to protect the integrity of fish habitat in selected streams.

b. Coordinate instream flow needs with the California Department of Fish and Game (DFG), Counties, and other local agencies to benefit fish habitat. Specific projects may entail hydroelectric facilities, water diversions, and water impoundments.

c. Improve the anadromous fishery within the South Fork Trinity River and its tributaries. This can be done by evaluating and implementing opportunities for stream habitat improvement, watershed restoration, and biological (stock) enhancement. This will be done in the context of a watershed/ecosystem analysis. These projects will be done in conjunction with the Trinity River Basin Fish and Wildlife Management Program.

d. Coordinate rehabilitation and enhancement projects with cooperating agencies involved in the Model Steelhead Stream Demonstration Project Plan and the Trinity River Basin Fish and Wildlife Management Program.

Additional Forest Standards and Guidelines affecting fisheries are contained in the Range and Soils and Water sections in this chapter.

10. FOREST PESTS

a. When conducting watershed/ecosystem analysis, consider the possible effects that Forest pests may have on management objectives and desired future conditions.

b. Implement an integrated pest management (IPM) program to maintain or reduce forest pest impacts to acceptable levels and to maintain or enhance forest health and vigor. Any decision to use pesticides will require site specific environmental analysis.

c. Continue to protect selected sugar pine trees and collect cones for screening for resistance to blister rust (*Cronartium ribicola*). Implement the Forests' sugar pine management plan.

d. During ecosystem analysis, consider opportunities to maintain stocking levels that will reduce susceptibility to bark beetle attack to move toward the desired future conditions.

e. Take measures that limit the spread of Port-Orford-cedar root disease. Conform with and implement Regional direction developed from the Interregional Port-Orford-cedar Action Plan. Strategies for reducing the risk to Port-Orford-cedar from infection by the root disease should be considered where appropriate during watershed analysis or project level planning.

f. Evaluate the need for conducting animal damage management activities on a site-by-site basis. Such evaluations and activities will be conducted in accordance with the latest Forest Service manual direction. These activities are subject to the NEPA process.

g. If overstory trees infected by dwarf mistletoe must be left in a stand on suitable timber lands, favor non-host species in the understory or for regeneration to provide a future healthy stand.

h. Do not regenerate a dwarf mistletoe infested stand with a shelterwood or seed tree system using natural regeneration, unless the infected seed or shelter trees are to be removed or killed within 10 years of the seed step harvest.

i. During thinning operations, discriminate against trees heavily infected by dwarf mistletoe if a vigorous, healthy stand is an objective. When much of the stand is infected, select leave trees that have the lowest mistletoe ratings. Do not leave trees with ratings of 5 or 6 unless they are needed to fulfill management objectives.

j. When regenerating wildfire areas, non-host species should be planted if dwarf mistletoe infected overstory trees are retained.

II. GEOLOGY - (See SOILS AND WATER Section)

12. LANDS

Special Uses

a. Do not approve special use applications if such use can reasonably be accommodated on private land.

b. Bury new telephone lines and new or reconstructed power distribution lines less than 35 KV, unless: (1) Visual Quality Objectives (VQOs) can be met without burying; (2) geologic conditions make burying infeasible; and (3) burying will produce greater long-term site disturbance.

c. When evaluating special use applications for a facility serving a proposed interior subdivision:

(1) consider impacts generated by the long term needs of the private development, including utilities, fire stations, solid waste dis posal sites, etc.;

(2) confine facilities to private land if they are essential to the development; and

(3) allow only one access route per subdivision or private parcel, unless public safety warrants alternative escape routes (i.e., fire or other natural disaster).

Rights-of-Way Acquisition

d. Acquire rights-of-way needed to manage Forest resources efficiently.

(1) When analyzing a proposed right-of-way, evaluate the need for full public access versus limited use (administrative and commercial hauling only); consider:

(a) proportion of public ownership;

(b) road maintenance responsibilities;

(c) alternate public access; and

(d) resource management closures.

(2) Participate in cost-sharing agreements with adjacent landowners, where appropriate.

Withdrawals

e. Pursue land withdrawals or rights-of-way reservations when needed. Confine withdrawal applications to lands vulnerable to mineral or hydropower development that are occupied by permanent improvements or other values that may be threatened.

Land Ownership Adjustment

f. Implement the landownership adjustment program through all available procedures such as exchange, donation, and purchase while maintaining resource balance. Condemnation procedures will be limited to extreme needs, such as campground expansion. The following landownership adjustment direction shall be applied for each of the described situations:

(1) **Wildernesses, Research Natural Areas, National Wild and Scenic Rivers, Special Management Areas, and National Recreation Trails**. Retain National Forest lands and acquire available, undeveloped private lands within these designated areas;

(2) **Whiskeytown-Shasta-Trinity National Recreation Area (NRA)**. Within and adjacent to the NRA acquire available, undeveloped private lands needed to fulfill the management goals and objectives of the recreation resource program. Acquire those parcels of land that are specifically needed: (a) for public development; (b) to protect major visual resource values; (c) to protect prime wildlife habitat; and (d) to preserve important cultural values and make them available for public enjoyment. As an interim measure, county zoning ordinances will be used to assist in achieving the above goals and objectives.

(3) **General Wildland Areas (with small, private ownerships)**. Retain National Forest land and acquire those non-National Forest lands that will: (a) promote special resource management goals; (b) prevent incompatible land use; and (c) contribute to the consolidation of landownership.

(4) **General Wildland Areas (with large, private ownerships - "checkerboard" pattern)**. Obtain gradual improvement of ownership patterns on a case-by-case basis.

(5) **Expanding Permanent Communities**. Only make National Forest land available for community expansion when there is no alternative on private or community owned land and there is clear evidence that the land is needed and suited for that use and not in conflict with higher public or environmental purpose. Secondly, retain and/or

obtain land needed to preserve or improve environmental conditions to the extent that National Forest programs can contribute.

(6) **Areas of scattered National Forest ownership**. Dispose of National Forest lands that are not needed for achieving resource objectives. Adjust administrative boundaries to locations backed by consolidated National Forest land.

(7) **Recreation Composites**. Seek a land ownership pattern that adequately provides for public needs.

g. Strive for resource balance when negotiating and designing land exchange projects.

h. As part of the land exchange process, assess Federal lands for all resource needs (wildlife habitat, etc).

Transportation and Utility Corridors

i. Avoid proliferation of separate utility rights-of-way.

(1) Establish transportation and utility corridors as needed to accommodate existing and planned facilities. Future rights-of-way will be confined to existing corridors unless there are overriding economic or environmental concerns.

(2) Major power transmission lines, from the north and south, will be confined to an eastern corridor within or in the close proximity to existing intertie lines.

Occupancy Trespass

j. Resolve unauthorized occupancies on National Forest lands.

Hydroelectric Power Projects

k. During licensing procedures, require licensees to develop, operate, maintain, or replace recreational facilities. The need for these actions will be generated by the project in proportion to its size.

l. Request that essential studies, agreements, and permits be completed and signed prior to license issuance by the Federal Energy Regulatory Commission (FERC).

m. Complete and approve essential studies and agreements prior to Forest Service permit issuance.

n. Mitigation for loss of public resources, resulting from hydroelectric project development, will be borne by the licensee. Included, as applicable, will be compensation for lost riparian areas, wildlife habitat, timber, commercial forest lands, cultural resources, fishery values, and recreational experiences.

o. Bury penstocks and power lines, where feasible and desirable, for resource mitigation. This mitigation will be determined by an environmental analysis.

p. Ensure that Environmental Impact Statements (EISs) and/or Environmental Assessments (EAs) for hydroelectric projects evaluate and propose mitigation measures for secondary, and/or side effects of projects, such as crew housing, recreational needs, and law enforcement problems.

q. During the project planning phase, consider the need for construction of trails, roads, and/or recreational facilities. The intent is to maintain or enhance current use and mitigate adverse impacts during construction.

r. Licensee will adopt the Forests' design motif and standard details to coordinate recreational/visual standards.

s. Transmission lines, switchyards, and access roads are direct impacts of a project; they will be evaluated with the other project facilities and documented in an EA or EIS.

t. For an EA, cumulative watershed effects for more than one project are to be addressed in the drainage in which they occur. These cumulative effects start from the last point on the stream where impacts may cease or are not evident, and include the entire major drainage above it.

u. Enter into a collection agreement to cover U.S. Forest Service costs in relation to planning, development, implementation, and administration of the project.

v. Coordinate with the DFG the establishment of instream flow needs to benefit fish habitat, especially with respect to hydroelectric projects, water diversions, and water impoundments.

w. Use landslide hazard information, in addition to that obtained during necessary on-site geologic investigations, in the design and location of any facility or structure.

Multi-User Electronic Sites

x. The following have been designated as multi-user electronic sites for the Shasta-Trinity National Forests' electronics site network:

(1) Plummer Peak
(2) Pickett Peak
(3) Hayfork Bally
(4) Ironsides
(5) Gray Butte
(6) Jack Flat
(7) Park Mountain
(8) Mt. Bradley
(9) Sugarloaf Mountain
(10) Bass Mountain
(11) Pettijohn Mountain
(12) Oak Mountain
(13) Tomhead Mountain

These sites should be developed to capacity prior to establishing new ones.

y. The following are designated as electronic sites for potential expansion of the electronic site network. If developed, they are to be designed as multi-user sites:

(1) Dubakella Mountain
(2) McFarlane Ridge
(3) Knob Peak
(4) Black Fox
(5) Bear Mountain
(6) Grizzly Peak

Land Lines

z. Survey, mark, and post all property boundary lines and corners to Forest Service standards prior to management activities taking place adjacent to them.

13. LAW ENFORCEMENT

Protect the public interest by a thorough and aggressive program of violation prevention, violation detection, investigation and apprehension of violators and the presentation of cases for prosecution.

14. MINERALS

a. In actively producing sites or areas containing known mineral reserves, undertake only those Forest activities that are compatible with mineral activity. Exceptions will be made in cases of unique resource values.

b. Avoid or minimize capital investments in or adjacent to areas with known reserves and outstanding mineral rights.

c. Minimize adverse impacts of mineral-related activities on surface resources through required lease stipulations and the administration of plans of operations.

d. In plans of operations, require reclamation of lands disturbed by mining.

e. Recommend denial of mineral lease applications in areas where the Forest Service or U.S. Fish and Wildlife Service have concluded that the operation will jeopardize the survival or recovery of a Federally listed threatened or endangered species or cause a species to become a candidate for listing.

f. Process geothermal lease applications within one year from the date of receipt. Submit site specific lease recommendations to the Regional Forester based on the approved Environmental Assessment for Geothermal Leasing (December 1981) or other approved environmental assessments.

g. Maintain an inventory of common variety mineral materials sites, specifying which are available for public use and which are available for Forest Service use.

h. Prepare a site development and rehabilitation plan before development and use of common variety mineral materials sites.

i. In areas withdrawn from mineral entry, a Forest Service mineral examiner will verify any claimed, valid existing rights prior to authorization of surface-disturbing mineral activities or surface-disturbing access development.

j. Restrict access and development in legally designated areas (areas withdrawn from mineral entry where valid existing rights may be exercised).

I5. RANGE

Range General

a. Determine the current ecological status of the Forest's rangelands. If rangelands are found in an unsatisfactory condition, use management strategies and activities necessary to achieve a satisfactory status.

b. Lands supporting vegetation that can be used by both domestic and wild grazing animals, without damage to wildlife, soil or water resource values, will be designated as "suitable for livestock grazing." The decision to "authorize" livestock grazing will be made at the project level.

c. Use livestock as a management tool to attain Forest Plan management goals and desired future conditions of rangeland vegetation. Consider ecological condition as related to ecosystem management goals.

d. Develop and evaluate, at the project level, grazing use alternatives which includes:

(1) Ecological condition of the range.

(2) Suitability of the range.

(3) The number of livestock to be grazed, season of use and kind/class of livestock use.

(4) The appropriate livestock stocking intensities to achieve a balanced ecological status, prevent over utilization of any desirable vegetative types and maintain good livestock distribution.

As funds become available, RPD's for each allotment will be revised or updated. Priority lists for this process will be developed based on (1) the existing resource conditions, (2) permit expiration dates, and (3) ecological/geographical factors.

e. Develop or revise Rangeland Project Decision documents (RPD) for each allotment on the Forest within the planning period.

f. Coordinate rangeland management activities with other agencies, institutions, organizations and individuals having an interest in the management of the rangeland resource, where it is appropriate. Use the Coordinated Resource Management Planning (CRMP) approach where appropriate to develop and implement the RPD.

g. Develop an integrated vegetation inventory. As data becomes available, the desired future condition of the rangeland resources should be modified, and expressed in terms of a desired ecological status (FSM 2090.11). The desired ecological status should be developed on a site by site basis. Where feasible, native species should be used to define the desired future condition of a community. In site specific cases where non-native species are stabilizing watersheds and improving resource conditions, and are not adversely impacting the desired biological diversity of the site, those non-native species may be used in the definition of the desired ecological status.

h. Determine and monitor the rangeland vegetation using ecological status, vegetative conditions and apparent trend on areas within existing allotments that are suitable for grazing.

i. Manage native pasture for sustained use.

j. Establish domestic and recreational stock utilization levels consistent with ecosystem objectives.

k. Refine utilization guidelines for each ecological vegetative condition and each seral stage as data becomes available.

l. Encourage permittee participation in the development of RPDs, AOIs, rangeland monitoring and evaluation and the development and maintenance of rangeland improvements.

m. Manage rangeland vegetation (herbs, shrubs and other woody vegetation) to maintain a diverse forage base.

n. Non-structural improvements, such as vegetation rejuvenation (burning, chaining, brush crushing), re-seeding should be used to maintain or improve forage conditions with diverse vigorous plants and age-classes. Priority should be given to areas of poor forage conditions and decadent shrubs.

o. Use structural and non-structural improvements, to manage and control livestock. The project design, construction and maintenance scheduling should be: (1) in accordance with Region 5 Range Improvement guidelines, and (2) in compliance with other resource needs.

p. When designing and constructing fences, consider wildlife movement.

q. When establishing water developments, consider the distribution of wildlife, domestic stock and wild horses.

All Range Types

r. The following guides for utilization of key species by condition classes are suggested below:

Percent Allowable Utilization Levels by Ecological Condition

	Upland	Wet Meadow	Riparian
Satisfactory Ecological Condition	40-55%*	45-60%	40-50%
	---	3" to 4"**	3" to 4"
Unsatisfactory Ecological Condition	25-35%	25-40%	20-30%
	---	4" to 5"	4" to 5"
Utilization Levels of Woody Vegetation	45-55%	45-55%	35-50%

* This figure represents the percentage of the current years growth that is acceptable to be removed during a single grazing year (Utilization level)

** Represents the approximate height of vegetation that is estimated will remain on the site after the end of the grazing season. This figure is an estimate, based on a general knowledge of the herbaceous species that occupy these types of sites within the Klamath Province. These figures must be refined based on species composition and growing conditions.

Transitory Range

s. Use the following guidelines:

(1) In natural or artificial regeneration, consider protection of tree seedlings to meet desired future conditions.

(2) Consider management strategies on the utilization of associated herbaceous and shrubby vegetation, soil and tree conditions.

(3) Combined summer use by wildlife and livestock should not exceed the carrying capacity of the ecosystem.

(4) Utilization of grasses and forbs can be estimated by ocular weight estimates by plot on paced transects. Shrub use can be estimated by either weight estimate or percent of twigs used.

(5) Fencing or management techniques may be required to protect regeneration areas while the remainder of the area is grazed.

t. Consider adjusting the timing and amount of livestock grazing within plantations to allow conifer seedling protection during the establishment phase. Where conflicts occur, resolution will favor maintaining timber management objectives. In some situations, livestock may be excluded from certain areas to allow for establishment of conifers.

Annual Range

u. Allowable utilization levels of annual grasslands, shall be based on maintaining 500 - 1,000 lbs./acre of residual dry matter depending on slope, location, etc.

16. RECREATION

a. Manage developed recreation sites according to the Recreation Opportunity Spectrum (ROS) classes listed in Appendix F.

b. Projects planned within the foreground areas adjacent to the Pacific Crest Trail (PCT), trailheads, camps, or other PCT related developments will incorporate the following requirements:

(1) Schedule activities which are visually evident to the PCT user to correspond with periods of low use.

(2) Provide a safe, usable, and convenient passage through the project area or a reasonable detour during the entire period of project activities. As a minimum, detours will consist of temporary route markers and a four foot wide travel way cleared of vegetation. Tread work will only be performed to allow safe stock passage.

(3) Permit landform alterations such as temporary roads, log landings, skid trails, borrow areas, etc., only when their location is not practical outside the foreground areas. Restore all landform modifications to approximate the original contour. Seed all exposed soil prior to winter in the year of last use. Landform modifications should be subordinate to the natural surroundings within one year after completion.

(4) Permanent roads that cross the PCT should be located where excavations can be minimized.

(5) Locate crossings of roads and utility lines as perpendicular to the PCT as practical.

(6) Repair to original condition or replace all facilities damaged during project activities with new facilities equivalent in size and quality to those originally provided.

(7) Reestablish trees on sites to be regenerated within five years after removal.

c. Provide barrier free recreation facilities that are accessible to physically challenged individuals. Emphasize these facilities at urban interface and other developed recreation locations.

d. Prepare objectives and prescriptions for managing vegetation in and around developed recreation sites.

e. Manage off-highway vehicle (OHV) use according to direction specified in the OHV Management Plan. Allow mountain bike (non-motorized) use on most trails. Exceptions where use is prohibited include the PCT and trails within designated Wildernesses.

f. Cooperate with the State, other agencies, and user groups to identify potential OHV trails. Where compatible with management objectives, develop segments of OHV trails that support the concept of a statewide OHV trail system.

g. Provide interpretive services to direct visitors to their recreation destinations, to facilitate understanding of resource management activities, and to acquaint them with unique or special features on the Forests and the function of forest ecosystems.

h. Management direction for the Whiskeytown-Shasta-Trinity National Recreation Area (NRA) will be based on and responsive to the following (as written in Title 36, Code of Federal Regulations, Section 251.40[a]):

   (1) provide public outdoor recreation opportunities;

   (2) conserve scenic, scientific, historic, and other values that contribute to public enjoyment; and

   (3) manage, use, and dispose of renewable natural resources which will promote, but do not significantly impair, public recreation or conservation of scenic, scientific, historic, or other values contributing to public enjoyment.

i. Make no new allocations for recreation residential purposes (this does not apply to sites provided for in lieu of existing sites).

j. Continue existing recreation tracts under special use permit unless a site-specific higher public use has been determined.

k. Complete a recreation opportunity guide for each Ranger District. Highlight special places, theme areas, and unique recreation opportunities.

l. Create additional opportunities for winter recreation, including alpine skiing, cross-country ski areas, snowmobile areas, and snow play areas.

m. Continue to improve access to rivers, streams, and lakes for water-oriented recreation activities consistent with the Aquatic Conservation Strategy. Continue to provide access to hunting, fishing, and wildlife viewing areas.

n. Facilitate use of National Forest lands adjacent to urban areas with pocket parks, group sites, and environmental education study areas. Develop or expand city-to-forest and other day use trail opportunities.

o. Mitigate the physical impacts of increased, dispersed recreation use. Rehabilitation efforts should respond to resource damage to soils, water, and vegetation.

p. Evaluate public demand for outfitter/guide services. Encourage commercial outfitting and guide permits where there is a demonstrated need that is compatible with general public use and resource conditions.

q. Develop and administer an operating plan consistent with Management Area direction for each outfitter/guide and, when appropriate, for other recreation special use permittees.

r. Promote partnerships with user groups to assist in the operation, maintenance, and development of recreation sites and facilities.

s. Reduce campsite maintenance expenses for garbage collection by promoting a "pack it in, pack it out" policy.

t. Encourage the private sector to help provide needed recreation sites, facilities, and services with a development level consistent with the environmental setting and appropriate studies.

u. Provide environmental education services through school programs and talks to special interest groups.

v. Provide Interpretive Association sales outlets for interpretive and recreation information at the Forest Supervisor's Office and at Mt. Shasta, Shasta Lake, and Weaverville District offices.

w. Initiate the "significant caves" listing process in accordance with section 4(b)(1)(A) of the Federal Caves Resource Protection Act (FCRPA) of 1988.

17. RIPARIAN AREAS

a. The Riparian Reserve Standards and Guidelines, found in the Management Prescription section under Riparian Reserves, apply to all 2.1 million acres of the Shasta-Trinity National Forests.

b. Maintain riparian area values, particularly when locating and constructing new roads and trails.

c. Identify and treat riparian areas that are in a degraded condition.

I8. SOILS AND WATER

a. Analyze each land disturbing project for its effect on the appropriate 2nd or 3rd order watershed (average size about 1,000 acres), to prevent excessive cumulative impacts on stream channel condition and water quality.

   (1) Determine the sensitivity of each 2nd or 3rd order watershed using soil, geologic, and streamflow characteristics.

   (2) The threshold of concern (TOC) for a watershed is expressed as the percentage of disturbed or compacted soil area within a total watershed. The Equivalent Roaded Acres (ERA) threshold equals 18 percent in low sensitivity watersheds, 16 percent in moderate sensitivity watersheds, 14 percent in high sensitivity watersheds, and 12 percent in extremely sensitive watersheds. The extremely sensitive watersheds are Hyampom, Happy Camp Creek, and Hidden Valley.

   (3) Projects on National Forest lands should not increase the ERA above the proportional share (depending on land ownership) of the TOC unless, as part of the project, existing ERAs will be reduced or the ERA recovery factor will be improved. Watersheds that are over TOC, regardless of ownership, will not be further impacted unless they can be improved with appropriate mitigation measures.

   (4) Coordinate projects with adjoining landowners.

b. Management activities within 5th order watersheds, which are in condition class 3, will emphasize watershed improvement and overall reduction in ERA levels. These watersheds are identified in Chapter III of the Final EIS.

c. Implement Best Management Practices (BMPs) for protection or improvement of water quality, as described in "Water Quality Management for National Forest System Lands in California," for applicable management activities. Determine specific practices or techniques during project level planning using information obtained from on-site soil, water, and geology investigations. (In addition, see Appendix E.)

d. Implement Forest Soil Quality Standards (Appendix O) and the Forest supplement of the Regional BMPs for areas identified as having highly erodible soils. Specifically, apply the special practices dealing with timber harvest, site preparation, and road construction in highly erodible soils.

e. Forest Soil Quality Standards, in relation to ground cover, soil organic matter, and soil porosity will be used to protect soil productivity (Appendix O).

f. Identify and treat areas with a degraded watershed condition in a cost-effective manner and according to beneficial use priorities. High priority items include domestic use, anadromous fish habitat, and sensitive species habitat. Improvement activities will be designed to meet Management Area objectives.

g. Secure water rights for existing and future National Forest consumptive uses.

h. Give full recognition to the tendency for erosion, mass land movement, and severe watershed damage potential when implementing vegetation management and related land management activities.

i. Assess the potential impacts of vegetation management, road construction, and related activities on slope stability and watershed condition for areas identified as moderately or highly unstable.

j. Dedicate no more than 15 percent of the land harvested by even-aged systems and no more than 20 percent of the land harvested by uneven-aged systems to non-productive purposes such as roads, trails, landings, etc.

k. When watering roads for dust abatement, follow the following rules:

   (1) Allow drafting from fishery streams only where immediate downstream discharge is maintained at 1.5 cubic feet per second (CFS) or greater.

   (2) Allow drafting from ephemeral streams, intermittent streams, wetlands or constructed ponds provided that sufficient water quantity and quality remains to support associated wildlife species and riparian values.

   (3) Never allow drafting to remove more than 50 percent of any stream discharge or 75 percent of constructed pond water.

l. Continue Ecological Unit Inventories primarily in those areas that are suitable for timber management.

19. SPECIAL AREAS

Research Natural Areas (RNA)

a. Coordinate and consult with the Regional Research Natural Area Committee to set priorities for identification and establishment of RNAs. During this Plan period, identify and establish suitable areas on the Forests for the target elements needed to complete the comprehensive regional RNA system.

b. Manage RNAs to maintain unmodified conditions and natural processes as set forth in Forest Service Manual (FSM) 4063.3.

c. Develop and implement an analysis/schedule, through an interdisciplinary process, for each established RNA.

Special Interest Areas (SIA)

d. Maintain SIA candidates in their current condition until the Regional Forester decides on their establishment.

e. Develop and interpret SIAs in a way that protects their special values as set forth in FSM 2372.4.

f. Develop and implement an analysis/schedule, through an interdisciplinary process, for each designated SIA.

20. TIMBER

Suitability/Allowable Sale Quantity

a. Harvest of scheduled timber will occur only on lands that are determined to be capable, available and suitable except as described below. The suitability of land for timber production will be field verified at the project level using the timber suitability criteria shown in Appendix I. Yields from suitable lands will be chargeable toward the allowable sale quantity (ASQ).

b. Harvest timber on lands unsuitable for timber production only when necessary to protect and enhance other resource values. Timber harvest will be consistent with silvicultural and environmental standards. Yields from unsuitable lands are nonchargeable toward the ASQ. Specific examples include:

(1) Trees or stands that are substantially damaged by fire, windthrow, or other catastrophe, or which are in imminent danger from insect or disease attack, may be harvested for salvage or sanitation purposes.

(2) Trees will be cut to protect the safety of forest users, such as hazard-tree removal in campgrounds and picnic sites, administrative sites, and along roads open to the public.

(3) Trees or stands may be harvested to meet habitat objectives for threatened or endangered animal or plant species, or to maintain or improve habitat for other fish or wildlife management indicator species.

(4) Timber may be harvested to improve the visual resource by opening scenic vistas or by improving visual variety.

(5) Trees or stands may be harvested for firewood and Christmas trees.

(6) Trees or stands may be cut to provide access, as in road construction.

Silvicultural Systems/Harvest Methods

c. A variety of silvicultural and timber management treatments may be practiced on lands managed for timber. A description of the various practices that may be used is found in Appendix J.

d. Determine the silvicultural system for a specific area after a stand evaluation by a silviculturist. The system chosen will reflect the recommendations made during the interdisciplinary watershed/ecosystem analysis. A site-specific prescription might select any even-aged or uneven-aged method, depending upon current stand conditions and the type of vegetative cover desired in the future. A description of when a particular silvicultural system might be most appropriate is found in Appendix C.

(1) An opening created by timber harvesting will no longer be considered an opening when the minimum number of trees specified above has reached a height of 4.5 feet.

(2) Openings shall generally be surrounded by timber stands 5 acres or larger in size, except that on a case-by-case basis openings may have up to 15 percent of their periphery in common with other openings. Openings will vary in size to fit resource objectives or natural variation in vegetation and topography and will not normally result in leave strips or areas less than logical harvest unit size between openings.

(3) The maximum size of created openings will be 60 acres for the Douglas-fir type and 40 acres for other forest types. New regeneration units may be created adjacent to existing openings on National Forest land as long as the collective total acreage does not exceed the maximum size limitation. Exceptions to the maximum size limitation may be permitted for specific timber sales (after a 60-day public notice period and review by the Regional Forester) or in case of catastrophes, such as fires, windstorms, and insect attacks. The actual size of each harvest unit will be determined through environmental analyses by an interdisciplinary team of resource specialists. Units will usually be considerably less than the maximum size limitation, normally in the 5 to 25 acre range.

(4) Even-aged stands of timber must have reached at least 95 percent of culmination of mean annual increment (cubic measure) prior to regeneration harvest (final harvest). Mean annual increment is to be based on expected growth according to planned management intensities and on forest type and site quality.

e. Emphasize the regeneration harvest of understocked and poorly-growing stands, whether using even or uneven-aged systems. Intermediate cuttings in overstocked stands (thinning) and the salvage of dead and dying trees will also be emphasized.

f. Include an economically feasible mixture of understocked areas and well-stocked, culminated stands in regeneration harvest.

Reforestation

g. Achieve the following stocking of well-distributed trees within five years of final harvest (unless otherwise certified by a certified silviculturist as meeting ecosystem objectives) under all silvicultural methods:

Timber Type	Minimum Trees Per Acre	Recommended Trees Per Acre
Mixed Conifer	150	200
Douglas-fir	125	225
Red Fir	200	300
Ponderosa Pine	75-150 (varies by site)	125-200

h. Provide for diversity of tree species indigenous to an area, in the course of conducting reforestation activities, by one or more of the following:

(1) plant an appropriate mix of tree species in areas to be artificially regenerated;

(2) encourage the regeneration of shade tolerant and intolerant tree species in areas to be naturally regenerated; and

(3) leave manageable, salvable, and suitable residual advanced reproduction in areas planned for regeneration cutting.

i. Examine the possibility of regenerating nonstocked suitable timber lands (brushfields, etc.)

Timber Stand Improvement and Forest Health

j. Consider a full range of vegetation management methods to treat competing vegetation and ensure adequate seedling establishment and plantation growth. These practices may include mechanical, manual, prescribed fire, biological, and chemical (herbicide) methods as well as grazing. Herbicides will be used only when essential to achieve the assigned land management objectives. Essential, in this case, is defined as follows: it is biologically, physically, or economically impractical to achieve the land management objectives using other methods. The method selected will be determined at the project level by site specific analysis during the environmental analysis process and will include monitoring and enforcement plans, as appropriate.

k. Use commercial thinning to maintain or improve tree health and vigor and to provide a marketable supply of wood products.

l. Timber stand improvement projects will emphasize maintaining or improving growth, and healthy, vigorous trees, through release and thinning.

21. VISUAL QUALITY

a. Manage activities and projects to meet adopted Visual Quality Objectives (VQOs) of: (1) preservation (P); (2) retention (R); (3) partial retention (PR); (4) modification (M); or (5) maximum modification (MM). On rare occasions the adopted VQO may not meet management's objectives (i.e., catastrophic events). Any proposed modification to adopted VQOs must go through the NEPA process and be approved by the Forest Supervisor.

b. In the following sensitive travel corridors the foreground portions (areas located up to 1/4 to

1/2 mile from the road viewer) will be managed primarily to meet the adopted VQO of R:

(1) Everitt Memorial Highway (County A10)

(2) Interstate 5

(3) State Highway 3

(4) State Highway 36

(5) State Highway 89

(6) State Highway 299

(7) U.S. Highway 97

c. In the following sensitive travel corridors, the middleground portions (areas between 1/4 to 1/2 mile and 3 to 5 miles from the road viewer) will be managed primarily to meet the adopted VQO of PR:

(1) Everitt Memorial Highway (County A10)

(2) Interstate 5

(3) South Fork (Sacramento River) Road (40N26)

(4) State Highway 3

(5) State Highway 36

(6) State Highway 89

(7) State Highway 299

(8) U.S. Highway 97

d. In the following sensitive travel corridors the foreground portions (areas located from 1/4 to 1/2 mile from the road viewer) will be managed primarily to meet the adopted VQO of PR:

(1) Ah-Di-Na Road (38N53)

(2) Canyon Creek Road (County 401 to Ripstein Campground)

(3) Castle Lake Road (County 2MO20)

(4) Coffee Creek Road (County 104)

(5) Eastside Road (County Road 106)

(6) Everitt Hill Road (Arterial Route 88)

(7) Fowlers Road (39N28.01)

(8) Gilman Road (35N60/County 7HO1 from Interstate 5 East to McCloud River Bridge)

(9) Harris Springs Road (43N15.1 from State Highway 89 to Powder Hill Road 43N49)

(10) Hobo Gulch Road (34N07Y/County 421)

(11) Hyampom Road (County 301)

(12) Mt. Shasta Round the Mountain Road

(13) New River Road (County 402 to Denny)

(14) Powder Hill Road (43N49)

(15) Rush Creek Road (County Road 204)

(16) South Fork Mountain Road (6N12/6N01)

(17) South Fork (Sacramento River) Road (40N26)

(18) Trinity Dam Boulevard (County Road 105)

(19) Wildwood Road (County Road 302)

22. WATER - (See SOILS AND WATER Section)

23. WILD AND SCENIC RIVERS

a. Develop Management Plans, using the limits of acceptable change process (LAC) for the existing Wild, Scenic and Recreation Rivers. They include: the mainstem Trinity River below Trinity Dam, New River, and the North Fork Trinity River.

b. Protect the existing character within a 1/4 mile boundary on either side of the proposed Wild and Scenic Rivers pending the outcome of their formal classification by Congress. These rivers include: Hayfork Creek from Nine Mile Bridge to the confluence of the South Fork Trinity River, the upper segments of the North Fork and South Fork Trinity River, Beegum Creek from Round Bottom to Forest boundary Section 5, Virgin Creek and Canyon Creek (see Appendix E in the final EIS). Follow procedures outlined in Forest Service Handbook 1909.12, Section 8.2, and the 1982 USDA Guidelines on Eligibility Classification and Management.

c. Recommend that the State of California include the Sacramento River, between Box Canyon and the NRA boundary, as part of the State's Wild and Scenic River System. That portion of the river meets recreation eligibility standards for Wild and Scenic river designation. However, about 84 percent of the adjacent lands are privately owned.

d. Manage the Upper and Lower McCloud River as well as Squaw Valley Creek in accordance with the Coordinated Resource Management Plan (CRMP). A primary objective of the Plan is to retain the characteristics of the waterways which made them eligible for wild and scenic river consideration, while at the same time recognizing the concerns of large private landowners.

Should the CRMP be dissolved, the Forest Service will seek classification of the waterways into the National Wild and Scenic River System.

24. WILDERNESS

a. Develop Wilderness Plans for each Wilderness using the limits of acceptable change (LAC) process. Designate management zones and allocate transition, semi-primitive, primitive, and pristine opportunity classes as defined in Appendix Q.

b. Post potential encroachment sites on the boundaries of the five Wildernesses within five years of Plan implementation.

c. Complete a Fire Management Plan for each Wilderness in two years. Return fire to its natural role when not in conflict with public safety. Permit fire management activities that are compatible with wilderness objectives.

d. When developing or revising Wilderness Management Plans consider the following:

(1) require visitor permits to monitor demographics, travel patterns, and use levels;

(2) ban or limit use of wood fires if resource damage occurs;

(3) effects of domestic pets and recreation stock on vegetation, wildlife, and social quality; and

(4) establish maximum levels of use, including party size and length of stay, in order to allow natural processes to continue and to retain social wilderness values.

e. Emphasize uses that are dependent upon the wilderness environment and cannot be reasonably accommodated elsewhere.

f. Initiate visitor information and education programs that interpret and emphasize values and behavior that protect wilderness resources. Post regulations, orders, and/or permits outside the Wilderness boundaries.

g. Include in each Wilderness Plan search and rescue procedures in conjunction with the local sheriff(s).

h. Maintain surface and sub-surface waters at the "high quality level" as defined by U.S. Environmental Protection Agency standards.

i. Manage vegetation to retain the primeval character of the wilderness environment and to allow natural ecological processes to operate freely. Remove trees only under emergency conditions such as fire, or insect and disease control.

j. Maintain fish and wildlife species indigenous to wildernesses with emphasis on preserving threatened, endangered, and sensitive species. Allow natural ecological dynamics of fish and wildlife populations to occur.

k. Address fish stocking in Wilderness Management Plans. Where already established, allow stocking to continue provided it does not interfere with peak recreation use. Give preference to native species. Do not permit fish stocking aircraft to land in Wildernesses.

l. Allow endemic levels of insect and disease infestations. Consider treating only epidemic levels that severely threaten wilderness values or adjacent non-wilderness lands.

m. Maintain high air quality in class I wilderness areas.

25. WILDLIFE (General)

a. Minimize accidental electrocution of raptors by ensuring that newly constructed overhead power lines meet safe design standards.

b. Consider transplants, introductions, or reintroductions of wildlife species only after ecosystem analysis and coordination with other agencies and the public.

c. Manage habitat for neotropical migrant birds to maintain viable population levels.

d. Develop interpretation/view sites for wildlife viewing, photography, and study. Provide pamphlets, slide shows, and other educational material that enhance the watchable wildlife and other interpretive programs.

e. Develop additional guzzlers, spring boxes, etc., to improve distribution and availability of drinking water for wildlife where identified as opportunities from ecosystem analysis.

Black-Tail and Mule Deer

f. (1) Design and construct new roads to minimize potential conflicts.

(2) Where possible, provide for line-of-sight barriers, consisting of vegetation and/or topography, along open roads in important deer areas.

(3) Use seasonal or permanent road closures to reduce disturbance during critical periods such as fawning season (see road closure policy under 7e).

Black Bear

g. Use seasonal or permanent road closures to reduce disturbance during critical cub rearing periods in selected black bear areas within Prescriptions VI and VII.

Wildlife (Threatened, Endangered and Sensitive [TE&S] Species)*

h. Maintain and/or enhance habitat for TE&S species consistent with individual species recovery plans.

i. Survey and evaluate habitat for TE&S species at the project level in coordination with the USFWS. Place in Prescription VII or Prescription IX, and/or require limited operating periods or other restrictions as appropriate.

j. Manage and protect potential bald eagle and peregrine falcon sites for future occupancy.

k. Require Limited Operating Periods adjacent to active goshawk nesting sites until the young have fledged.

* See Management Prescriptions (Standards and Guidelines) for additional TE&S species direction.

MANAGEMENT PRESCRIPTIONS

F

Land Allocations and Standards and Guidelines from the Record of Decision (ROD) for Late-Successional Species Within the Range of the Northern Spotted Owl (Level 2)

Shasta-Trinity Management Prescriptions (Level 3)

Management Prescriptions apply a management theme to specific types of land. Within the general framework of the Forest Standards and Guidelines, they identify the specific activities that are to be emphasized or permitted on that land and their associated standards and guidelines.

There are two levels of allocations and their associated standards and guidelines. The first are those allocations and standards and guidelines that were required by the ROD (Level 2). The second are the 11 management prescriptions described below that relate to, tier to, and further refine the ROD allocations and standards and guidelines (Level 3). For some of the ROD allocations there are multiple management prescriptions that further refine the ROD standards and guidelines but are never less restrictive (Matrix, Administratively Withdrawn Areas, and Adaptive Management Areas). For other ROD allocations there is essentially a one to one relationship between the ROD allocation and the Forest developed Management Prescription (Riparian Reserves, Congressional Reserves, and Late-Successional Reserves). In this latter case the refinements from the management prescription are either much less noticeable as in Late- Successional Reserves and Riparian Reserves or still refine the direction as with Congressional Reserves.

The allocations resulting from the amendment of the Regional Guides include standards and guidelines that will apply across each allocation.

The Management Prescriptions that tier to the above allocations consists of five parts:

1. **Objective Statement** - This describes the purpose of the prescription.
2. **Emphasized Practices** - These are to be implemented as an integral part of the prescription.
3. **Permitted Practices** - These are allowed in the implementation of the prescription provided they are not detrimental to the objectives of the prescription.

   Management Practices not listed as either emphasized or permitted are incompatible under that given prescription. (See Appendix L for a description of these management practices).
4. **Areas Where the Prescription is Applied** - This describes the land or type of land to which the prescription is applied.
5. **Prescription Standards and Guidelines** - These give further guidance on specifically how to implement the prescription.

Six land allocations and eleven Management Prescriptions were considered in the development of the Forest Plan. They range from emphasis on multiple use activities, to Wilderness, to emphasis on Late-Successional stage characteristics. Their distribution among the 22 Management Areas on the Shasta-Trinity National Forests is displayed in **Table 4-4**.

Table 4-4
Summary of Acreage Allocations by Management Area and Prescription

Management Area*	CR V	LSR VII	AWA I	AWA II	AWA IV	AWA X	AWA XI	RR IX	AMA AND MATRIX III	AMA AND MATRIX VI	AMA AND MATRIX VIII	TOTAL
1		3,168				5,470	195	2,386	4,545	32,563	39,829	88,156
2		21,336			177	421	449	8,721	7,769	17,833	74,058	130,764
3		15,019	718		143	3,615	108	5,992	39,701	283	3,704	69,282
4	498,776											498,776
5		23,588	10,840		189	1,613	145	5,572	23,284	4,886	893	71,010
6		17,596	1,722	4,341	369	1,064	35	12,504	8,161	11,026	16,402	73,221
7		42,705			431		240	12,665	7,615	4,581	6,802	75,039
8		35,469		34,302	2,235	738	143	57,214	44,722			174,823
9		22,419	873	1,798	111		761	10,002	2,758	7113	13,007	58,842
10		54,756	311		483	138	88	2,072	4,374	459		62,682
11		48,685		5,143	121	221	30	2,035		2,936	5,204	64,376
12		17,015	6,792	2,577	194	4,682	40	12,440	1,204	24,352	11,531	80,826
13		1,329		2,764			15	7,685	3,558	12,289	1,244	28,883
14		45,385	2,288	625	198		10	4,319	979	3,129	4,276	61,210
15		46,346		938	319		411	12,791	14,597	9,033	3,552	87,986
16		13,715	561					3,586		1,676	4,984	24,522
17		3,965	16,491		65		40	5,673	1,045	3,665	5,374	36,318
18		19,167				187	179	29,316	11,503	15,675	13,127	89,156
19		23,379	9,260	557	397	952	246	36,024	16,196	1,319	36,027	124,356
20		45,927	2,597	5,726	40	4,192	275	7,433	1,383	2,316	10,105	79,994
21		22,562	2,073	268	369	51	110	14,646	161	2,604	22,902	65,746
22		7,987	12,459		406	687	50	21,234	6,337	14,238	12,181	75,579
TOTAL	**498,776**	**531,520**	**66,984**	**59,040**	**6,247**	**24,031**	**3,570**	**274,308**	**199,892**	**171,976**	**285,203**	**2,121,547**

CR Congressionally Reserved
LSR Late-Successional Reserves
AWA Administratively Withdrawn Areas
RR Riparian Reserves
AMA Adaptive Management Areas

* Management area names with page references begin on page 4-73

Standards and Guidelines from the ROD

These standards and guidelines retain existing land allocations for Congressionally Reserved Areas. These include lands with congressional designations that normally preclude timber harvest such as Wilderness. Management of these lands follows direction written in the applicable legislation or plans. Direction from these standards and guidelines also applies where it is more restrictive or provides greater benefits to Late-Successional forest related species, unless the application of these standards and guidelines will be contrary to legislative or regulatory language or intent.

Management Prescriptions Developed Through the Forest Planning Process

V. WILDERNESS MANAGEMENT

A. Objective

This prescription provides for management of Congressionally designated Wildernesses in accordance with the National Wilderness Preservation Act of 1964 and associated regulations. Emphasis is placed on maintaining natural ecosystems. This includes retention of old-growth vegetation and management of wildlife species requiring these late seral stage conditions.

B. Management Practices

Emphasized:

Primitive Recreation

Permitted:

Coldwater Fishery Habitat Management

Heritage Resource Management - Archaeological and Historical Sites

Heritage Resource Management - Native American Sacred Places

Fire Management

Fisheries Habitat Management - Sensitive Fish

Habitat Management - Sensitive and Endemic Plants

Integrated Pest Management

Livestock Grazing

Minerals Development (subject to prior valid existing rights)

Research Natural Area Establishment and Management

Soils and Water Improvement

Streamside and Wetlands Management

Trail Construction and Reconstruction

Wildlife Habitat Management - Existing T&E Species

Wildlife Habitat Management - Sensitive Animals

C. Description of Areas Where Prescription V Will Be Applied

This prescription applies to areas which have been designated or recommended for Wilderness and which are 5,000 acres in size, or greater. The setting is essentially an unmodified natural environment. Evidence of trails is acceptable, but structures are rare. Few users will be encountered on trails and few parties will be visible at camp sites. Typical activities include: hiking, horseback riding, backpacking, camping, fishing, hunting, sightseeing and photography. This prescription also applies to designated Wild segments of Wild and Scenic Rivers within designated Wildernesses.

D. Standards and Guidelines

1. Discourage visitor concentration in areas of heritage resource values.
2. Prepare Fire Management Action Plans that will consider and define the circumstances to use in confine, contain, and control suppression strategies.
3. Wildfire suppression tactics will favor the use of natural barriers, topography or water courses, and low impact techniques. After fires are declared out, take appropriate action to rehabilitate and/or restore the site.
4. Locate incident bases and staging areas outside of Wildernesses. When necessary, within a Wilderness, use small (50-60 people) suppression camps in areas where degradation of water quality can be avoided. Return sites to a pre-use condition.
5. Use of prescribed fire from planned ignitions to perpetuate natural ecosystems, or to protect adjacent resources, may be undertaken only after Washington Office (WO) approval.

6. Permit helispots when approved by the Forest Supervisor. Use natural openings to the extent possible.

7. Biological enhancement opportunities for fish and wildlife will be coordinated with the California Department of Fish and Game (DFG).

8. Pest management activities will only be conducted to prevent the unnatural loss of Wilderness resources or to protect timber and other valuable resources adjacent to Wildernesses.

9. Existing livestock grazing allotments are to be evaluated and managed in such a manner so as not to be detrimental to riparian habitats or other natural resources. As grazing allotments come up for renewal within the Wilderness, they will be evaluated as to the appropriateness of that activity in that area.

10. Permit recreational stock use as long as impacts remain within acceptable limits. Recommend packing supplemental feed. Confine stock at least 200 feet from ponds, lakes, streams, springs, trails, camps, and other high interest features.

11. Management activities should be compatible with Primitive Recreation Opportunity Spectrum (ROS) guidelines unless otherwise specified in approved Wilderness Management Plans.

12. Manage recreation use according to operation and development plans.

13. Provide educational materials at trailheads to explain wilderness use and protection. Stress wilderness manners, health, safety, no-trace camping, domestic pet control, and use of firearms.

14. Manage to meet Visual Quality Objectives (VQOs) of preservation.

15. Maintain snags, dead/down material, and hardwoods at naturally occurring levels. Dead/down vegetation may be used in amounts that can be replaced annually through natural accumulation. Standing vegetation (green or dead) may not be used.

16. Use this prescription to provide additional habitat and connecting corridors for fisher and marten and to provide additional habitat for goshawk.

17. Trail construction, reconstruction, relocation, and maintenance should be accomplished in a manner consistent with the purposes of the Wilderness Act. Apply the following stipulations to the Pacific Crest Trail (PCT):

    a. authorize relocation only if necessary to meet wilderness objectives;

    b. do not publicize the Wilderness portion of the PCT as a special attraction;

    c. use markers only to the extent necessary to direct uses at trail junctions; and

    d. accommodate winter use where feasible.

18. Determine the historic significance of existing structures. Limit structures and improvements, not of historic significance, to those needed for the protection and management of wilderness.

19. Except for trail signing, do not use signing within primitive and pristine opportunity classes. Limit signing in other opportunity classes to those needed for administration and protection of the Wilderness.

20. Locate campsites to take advantage of vegetative screening and topography. Where terrain allows, set campsites back at least 100 feet from ponds, lakes, streams, trails, and other interest features. Maintain healthy, native vegetation around campsites.

21. Consider revegetation projects under the following conditions:

    a. use patterns that have caused loss of vegetation can be modified;

    b. only native species may be used; and

    c. candidate areas are site specific and can be closed until new vegetation is established. Temporary signing and string barriers may be used as a protective barrier if necessary.

22. Mitigate effects of human use, which exceed standards and guidelines for wilderness management, as stated in this Forest Plan or individual wilderness management plans using the following sequence of actions:

First Level Action - Public Information and Site Restoration

    a. De-emphasize attraction of excessively used areas and promote use of alternate areas.

b. Inform the public of low-impact back-country techniques and no-trace camping practices through public service media messages, trailhead notices, informational brochures, and personal contact.

c. Adjust or remove administrative and informational signing.

d. Remove or reduce any facilities contributing to concentration of use beyond capacity.

e. Reduce fishing use, in coordination with the DFG, if excessive impacts occur at a specific location.

f. Revegetate damaged areas and post site restoration messages.

g. Restrict commercial outfitter/guide use of the affected area.

Second Level Action - Use of Regulations

a. Limit or ban campfires.

b. Designate campsites.

c. Require minimum spacing between campsites.

d. Impose a minimum camp site setback from water and trails.

e. Restrict types of use in a specific area or on trails leading to an affected area.

f. Restrict group size.

g. Limit length of stay.

h. Close revegetated campsites.

i. Install toilet facilities to correct major sanitation problems (transition opportunity classes only).

Third Level Action - Restrict Number of Users

a. Allow only day use.

b. Restrict time of entry.

c. Restrict location of entry.

d. Restrict number of entries.

Fourth Level Action - Close Area to All Users

An area may be closed to all recreation use until it is rehabilitated and restored to wilderness conditions.

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2. LATE-SUCCESSIONAL RESERVES, MANAGED LATE-SUCCESSIONAL AREAS, and OTHER THREATENED, ENDANGERED, or SENSITIVE SPECIES (Bald Eagle and Peregrine Falcon)

Standards and Guidelines from the ROD

Objectives - Late-Successional Reserves are to be managed to protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as habitat for late-successional and old-growth related species including the northern spotted owl. These reserves are designed to maintain a functional, interacting, late-successional and old-growth forest ecosystem.

Exceptions - Research Natural Areas and activities required by recovery plans for listed threatened and endangered species take precedence over Late-Successional Reserve Standards and Guidelines.

Management Assessment for Late-Successional Reserves - A management assessment should be prepared for each large Late-Successional Reserve (or group of smaller Late-Successional Reserves) before habitat manipulation activities are designed and implemented. The assessments may be developed as components of or amendments to the Forest Plan. If developed to stand alone, the assessments should be closely coordinated with subsequent watershed analysis and province-level planning. Standards and guidelines should be refined at the province level, prior to development of Late-Successional Reserve assessments. Late-Successional Reserve assessments should generally include: (1) a history and inventory of overall vegetative conditions within the reserve, (2) a list of identified late-successional associated species known to exist within the Late-Successional Reserve and information on their locations, (3) a history and description of current land uses within the reserve, (4) a fire management plan, (5) criteria for developing appropriate treatments, (6) identification of specific areas that could be treated under those criteria, (7) a proposed implementation schedule tiered to higher order (i.e., larger scale) plans, and (8) proposed monitoring and evaluation components to help evaluate if future activities are carried out as intended and achieve desired results. Only in unusual circumstances will silvicultural treatments, including prescribed fire, precede preparation of this management assessment. Late-Successional Reserve assessments are subject to review. Until Late-Successional Reserve assessments are completed, fire suppression activities should be guided by land allocation objectives and Forest Standards and Guidelines.

Occupied Marbled Murrelet Sites - Timber harvest is prohibited within occupied marbled murrelet habitat at least until completion of the Marbled Murrelet Recovery Plan. Silvicultural treatments in non-habitat within the 0.5-mile circle must protect or enhance the suitable or replacement habitat. When objectives of the Marbled Murrelet Recovery Plan have been identified, management direction will be amended or revised as appropriate.

Silviculture - Thinning or other silvicultural treatments inside reserves are subject to review to ensure that the treatments are beneficial to the creation of late-successional forest conditions. Excepted from review are reforestation activities legally required by, and planned as part of, existing sold timber sales, where the reforestation prescription has been modified as appropriate to meet the objectives of the Late-Successional Reserve.

Given the increased risk of fire in this area due to lower moisture conditions and the rapid accumulation of fuels in the aftermath of insect outbreaks and drought, additional management activities are allowed in Late-Successional Reserves. Guidelines to reduce risks of large-scale disturbance follows.

Guidelines to Reduce Risks of Large-Scale Disturbance - Large-scale disturbances are natural events, such as fire, that can eliminate spotted owl habitat on hundreds or thousands of acres. Certain risk management activities, if properly planned and implemented, may reduce the probability of these major stand-replacing events.

Silvicultural activities aimed at reducing risk shall focus on younger stands in Late-Successional Reserves. The objective will be to accelerate development of late-successional conditions while making the future stand less susceptible to natural disturbances. Salvage activities should focus on the reduction of catastrophic insect, disease, and fire threats. Treatments should be designed to provide effective fuel breaks wherever possible. However, the scale of salvage and other treatments should not generally result in degeneration of currently suitable owl habitat or other late-successional conditions.

The following guidelines are general. Specific guidelines should be developed for each physiographic province, and possibly for different forest types within provinces.

1. The potential for benefit to species associated with late-successional forest conditions from salvage is greatest when stand-replacing events are involved. Salvage in disturbed sites of less than 10 acres is not appropriate because small forest openings are an important component of old-growth forests. In addition, salvage should occur only in stands where disturbance has reduced canopy closure to less than 40 percent, because stands with more closure are likely to provide some value for species associated with these forests.

2. Surviving trees will provide a significant residual of larger trees in the developing stand. In addition, defects caused by fire in residual trees may accelerate development of structural characteristics suitable for associated species. Also, those damaged trees that eventually die will provide additional snags. Consequently, all standing live trees should be retained, including those injured (e.g., scorched) but likely to survive. Inspection of the cambium layer can provide an indication of potential tree mortality.

3. Snags provide a variety of habitat benefits for a variety of wildlife species associated with late-successional forests. Accordingly, following stand-replacing disturbance, management should focus on retaining snags that are likely to persist until late-successional conditions have developed and the new stand is again producing large snags. Late-successional conditions are not associated with stands less than 80 years old.

4. Following a stand-replacing disturbance, management should retain adequate coarse woody debris quantities in the new stand so that in the future it will still contain amounts similar to naturally regenerated stands. The analysis that determines the amount of coarse woody debris to leave must account for the full period of time before the new stand begins to contribute coarse woody debris. As in the case of snags, province-level specifications must be provided for this guideline. Because coarse woody debris decay rates, forest dynamics, and site productivity undoubtedly will vary among provinces and forest types, the specifications also will vary.

   Province-level plans will establish appropriate levels of coarse woody debris and decay rates to be used. Levels will be "typical" and will not require retention of all material where it is highly concentrated, or too small to contribute to coarse woody debris over the long time frames discussed. This standard and guideline represents one item to be considered and may indeed result in no salvage following windthrow in low density stands. As for other management activities, it is expected that salvage standards and guidelines will be refined through the implementation and adaptive management processes.

5. Some salvage that does not meet the preceding guidelines will be allowed when salvage is essential to reduce the future risk of fire or insect damage to late-successional forest conditions. It is important to understand that some risk associated with fire and insects is acceptable because they are natural forces influencing late-successional forest development. Consequently, salvage to reduce such risks should focus only on those areas where there is high risk of large-scale disturbance.

6. Removal of snags and logs may be necessary to reduce hazards to humans along roads and trails, and in or adjacent to campgrounds. Where materials must be removed from the site, as in a campground or on a road, a salvage sale is appropriate. In other areas, such as along roads, leaving material on site should be considered. Also, material will be left where available coarse woody debris is inadequate.

7. Where green trees, snags, and logs are present following disturbance, the green-tree and snag guidelines will be applied first, and completely satisfied where possible. The biomass left in snags can be credited toward the amount of coarse woody debris biomass needed to achieve management objectives.

8. These basic guidelines may not be applicable after disturbances in younger stands because remnant coarse woody debris may be relatively small. In these cases, diameter and biomass retention guidelines should be developed consistent with the intention of achieving late-successional forest conditions.

9. Logs present on the forest floor before a disturbance event provide habitat benefits that are likely to continue. It seldom will be appropriate to remove them. Where these logs are in an advanced state of decay, they will not be credited toward objectives for coarse woody debris retention developed after a disturbance event. Advanced state of decay should be defined as logs not expected to persist to the time when the new stand begins producing coarse woody debris.

10. The coarse woody debris retained should approximate the species composition of the original stand to help replicate preexisting suitable habitat conditions.

11. Some deviation from these general guidelines may be allowed to provide reasonable access to salvage sites and feasible logging operations. Such deviation should occur on as small a portion of the area as possible, and should not result in violation of the basic intent that late-successional forest habitat or the development of such habitat in the future should not be impaired throughout the area. While exceptions to the guidelines may be allowed to provide access and operability, some salvage opportunities will undoubtedly be foregone because of access, feasibility, and safety concerns.

Standards and Guidelines for Multiple-Use Activities Other Than Silviculture

Introduction - As a general guideline, nonsilvicultural activities located inside Late-Successional Reserves that are neutral or beneficial to the creation and maintenance of late-successional habitat are allowed.

While most existing uses and development are envisioned to remain, it may be necessary to modify or eliminate some current activities in Late-Successional Reserves that pose adverse impacts. This may require the revision of management guidelines, procedures, or regulations governing these multiple-use activities.

Road Construction and Maintenance - Road construction in Late-Successional Reserves for silvicultural, salvage, and other activities generally is not recommended unless potential benefits exceed the costs of habitat impairment. If new roads are necessary to implement a practice that is otherwise in accordance with these guidelines, they will be kept to a minimum, be routed through non-late-successional habitat where possible, and be designed to minimize adverse impacts. Alternative access methods, such as aerial logging, should be considered to provide access for activities in reserves.

Road maintenance may include felling hazard trees along rights-of-way. Leaving material on site should be considered if available coarse woody debris is inadequate. Topping trees should be considered as an alternative to felling.

Fuelwood Gathering - Fuelwood gathering will be permitted only in existing cull decks, where green trees are marked by silviculturists to thin (consistent with standards and guidelines), to remove blowdown blocking roads, and in recently harvested timber sale units where down material will impede scheduled post-sale activities or pose an unacceptable risk of future large-scale disturbances. In all cases these activities should comply with the standards and guidelines for salvage and silvicultural activities.

American Indian Uses - The exercise of tribal treaty rights will not be restricted by these standards and guidelines unless the Regional Interagency Executive Committee determines that the restriction is (1) reasonable and necessary for preservation of the species at issue, (2) the conservation purpose of the restriction cannot be achieved solely by regulation of non-Indian activities, (3) the restriction is the least restrictive available to achieve the required conservation purpose, (4) the restriction does not discriminate against Indian activities either as stated or as applied, and (5) voluntary tribal conservation measures are not adequate to achieve the necessary conservation purpose.

Mining - The impacts of ongoing and proposed mining actions will be assessed, and mineral activity permits will include appropriate stipulations (e.g., seasonal or other restrictions) related to all phases of mineral activity. The guiding principle will be to design mitigation measures that minimize detrimental effects to late-successional habitat.

Developments - Development of new facilities that may adversely affect Late-Successional Reserves should not be permitted. New development proposals that address public needs or provide significant public benefits, such as powerlines, pipelines, reservoirs, recreation sites, or other public works projects will be reviewed on a case-by-case basis and may be approved when adverse effects can be minimized and mitigated. These will be planned to have the least possible adverse impacts on Late-Successional Reserves. Developments will be located to avoid degradation of habitat and adverse effects on identified late-successional species. Existing developments in Late-Successional Reserves such as campgrounds, recreation residences, ski areas, utility corridors, and electronic sites are considered existing uses with respect to Late-Successional Reserve objectives, and may remain, consistent with other standards and guidelines. Routine maintenance of existing facilities is expected to have less effect on current old-growth conditions than development of new facilities. Maintenance activities may include felling hazard trees along utility rights-of-way, trails, and other developed areas.

Land Exchanges - Land exchanges involving Late-Successional Reserves will be considered if they provide benefits equal to or better than current conditions. Consider land exchanges especially to improve area, distribution, and quality (e.g., connectivity, shape, contribution to biodiversity) of Late-Successional Reserves, especially where public and private lands are intermingled (e.g., checkerboard ownership).

Habitat Improvement Projects - Projects designed to improve conditions for fish, wildlife, or watersheds should be considered if they provide late-successional habitat benefits or if their effect on late-successional associated species is negligible. Projects required for recovery of threatened or endangered species should be considered even if they result in some reduction of habitat quality for other late-successional species. For example, watershed rehabilitation projects, such as felling trees along streams, will be coordinated with a wildlife biologist and may include seasonal restrictions. Design and implement watershed restoration projects in a manner that is consistent with Late-Successional Reserve objectives.

Range Management - Range-related management that does not adversely affect late-successional habitat will be developed in coordination with wildlife and fisheries biologists. Adjust or eliminate grazing practices that retard or prevent attainment of reserve objectives. Evaluate effects of existing and proposed livestock management and handling facilities in reserves to determine if reserve objectives are met. Where objectives cannot be met, relocate livestock management and/or handling facilities.

Fire Suppression and Prevention - Each Late-Successional Reserve will be included in fire management planning as part of watershed analysis. Fuels management in Late-Successional Reserves will utilize minimum impact suppression methods in accordance with guidelines for reducing risks of large-scale disturbances. Plans for wildfire suppression will emphasize maintaining late-successional habitat. During actual fire suppression activities, fire managers will consult with resource specialists (e.g., botanists, fisheries and wildlife biologists, hydrologists) familiar with the area, these standards and guidelines, and their objectives, to assure that habitat damage is minimized. Until a fire management plan is completed for Late-Successional Reserves, suppress wildfire to avoid loss of habitat in order to maintain future management options.

In Late-Successional Reserves, a specific fire management plan will be prepared prior to any habitat manipulation activities. This plan, prepared during watershed analysis or as an element of province-level planning or a Late-Successional Reserve assessment, should specify how hazard reduction and other prescribed fire applications will meet the objectives of the Late-Successional Reserve. Until the plan is approved, proposed activities will be subject to review by the Regional Ecosystem Office. The Regional Ecosystem Office may develop additional guidelines that will exempt some activities from review. In all Late-Successional Reserves, watershed analysis will provide information to determine the amount of coarse woody debris to be retained when applying prescribed fire.

In Riparian and Late-Successional Reserves, the goal of wildfire suppression is to limit the size of all fires. When watershed analysis, province-level planning, or a Late-Successional Reserve assessment are completed, some natural fires may be allowed to burn under prescribed conditions. Rapidly extinguishing smoldering coarse woody debris and duff should be considered to preserve these ecosystem elements.

Special Forest Products - Special forest products include but are not limited to posts, poles, rails, landscape transplants, yew bark, shakes, seed cones, Christmas trees, boughs, mushrooms, fruits, berries, hardwoods, forest greens (e.g., ferns, huckleberry, salal, beargrass, Oregon grape, and mosses), and medicinal forest products. In all cases, evaluate whether activities have adverse effects on Late-Successional Reserve objectives. Sales will ensure resource sustainability and protection of other resource values such as special status plant or animal species. Where these activities are extensive (e.g., collection of Pacific Yew bark or fungi), it will be appropriate to evaluate whether they have significant effects on late-successional habitat. Restrictions may be appropriate in some cases.

Recreational Uses - Dispersed recreational uses, including hunting and fishing, generally are consistent with the objectives of Late-Successional Reserves. Use adjustment measures such as education, use limitations, traffic control devices, or increased maintenance when dispersed and developed recreation practices retard or prevent attainment of Late-Successional Reserve objectives.

Research - A variety of wildlife and other research activities may be ongoing and proposed in late-successional habitat. These activities must be assessed to determine if they are consistent with Late-Successional Reserve objectives. Some activities not otherwise consistent with the objectives may be appropriate, particularly if the activities will test critical assumptions of these standards and guidelines, will produce results important for habitat development, or if the activities represent continuation of long-term research. These activities should only be considered if there are no equivalent opportunities outside Late-Successional Reserves.

Rights-of-Way, Contracted Rights, Easements, and Special Use Permits - Access to nonfederal lands through Late-Successional Reserves will be considered and existing right-of-way agreements, contracted rights, easements, and special use permits in Late-Successional Reserves will be recognized as valid uses. New access proposals may require mitigation mea-

sures to reduce adverse effects on Late-Successional Reserves. In these cases, alternate routes that avoid late-successional habitat should be considered. If roads must be routed through a reserve, they will be designed and located to have the least impact on late-successional habitat. Review all special use permits and when objectives of Late-Successional Reserves are not being met, reduce impacts through either modification of existing permits or education.

Nonnative Species - In general nonnative species (plant and animal) should not be introduced into Late-Successional Reserves. If an introduction of nonnative species is proposed, complete an assessment of impacts and avoid any introduction that will retard or prevent achievement of Late-Successional Reserve objectives. Evaluate impacts of nonnative species (plant and animal) currently existing within reserves, and develop plans and recommendations for eliminating or controlling nonnative species that are inconsistent with Late-Successional Reserve objectives. These will include an analysis of the effects of implementing such programs to other species or habitats within Late-Successional Reserves.

Other - Other activities should be evaluated by local interdisciplinary teams and appropriate guidelines should be written and documented. Activities deemed to have potentially adverse effects on Late-Successional Reserve objectives are subject to review of the Regional Ecosystem Office.

Protection Buffers

Protection Buffers are additional standards and guidelines for specific rare and locally endemic species, and other specific species in the upland forest matrix. The following rare and locally endemic species are likely to be assured viability if they occur within reserves. However, there might be occupied locations outside these areas that will be important to protect as well. Protocols for surveys will be developed that will ensure a high likelihood of locating these occupied sites, and such surveys will be conducted prior to ground-disturbing activities within the known or suspected ranges and within the habitat types or vegetation communities occupied by these species, according to the implementation schedule for Survey and Manage components 1 and 2 (see Forest-wide Standards and Guidelines). When located, the occupied sites need to be protected as follows.

Nonvascular Plants:

Ptilidium californicum (Liverwort) - This species is rare and has a very limited distribution in old white fir forests with fallen trees. It occurs on trunks of trees at about 5000-feet elevation. Mitigation options include finding locations and maintaining stands of overmature white fir at about 5000-feet elevation for inoculum and dispersal along corridors; and studying specific distribution patterns. Protect known occupied locations if distribution patterns are disjunct and highly localized by deferring timber harvest and avoiding removal of fallen trees and logs.

Ulota meglospora (Moss) - This species occurs in northern California and southwest Oregon. It is best developed (locally abundant) in very old stands of tanoak, Douglas-fir, and other conifer species further north, but is generally scarce throughout its range. The species is poorly known ecologically. Mitigation activities include conducting basic ecological studies, and surveying for presence. Protect known occupied sites if distribution patterns are disjunct and highly localized. Defer timber harvest or other activities which will not maintain desired habitat characteristics and population levels.

Aleuria rhenana (Fungus) - This mushroom is widely distributed but rare and little known throughout its range, known from one collection from Mt. Rainier National Park. It is a conifer litter decomposer. Mitigation activities include conducting ecological studies and surveys to determine localities. Protect known populations if surveys continue to indicate that the population is rare. Defer ground-disturbing activities.

Otidea leporina, O. onotica, and ***O. smithii*** (Fungi) - These mushrooms occur in conifer duff, and are widespread in distribution but uncommon. They are dependent on older-age forests. Specific mitigation options include protecting older forests from ground disturbance where the species are located.

Amphibians:

Shasta Salamander - This species is very narrowly distributed, occurring only in localized populations on the Shasta-Trinity National Forest. Only a small part of its range is included within Habitat Conservation Areas identified by the Interagency Scientific Committee (1990) (status within Late-Successional Reserves has not been determined). It occurs in association with limestone outcrops, protected by an overstory canopy. All known and future localities must be delineated and protected from timber harvest, mining, quarry activity, and road building within the delineated site, and a buffer of at least the height of one site-potential tree or 100 feet horizontal distance, whichever is greater, should surround the outcrop. Additional surveys conducted using a standardized protocol must be undertaken to identify and delineate all occupied sites within the species' potential range.

Birds:

Great Gray Owl - Within the range of the northern spotted owl, the great gray owl is most common in lodgepole pine forests adjacent to meadows. However, it is also found in other coniferous forest types. In some locations, such as on the Willamette National Forest west of the crest of the Cascade Range, at least some shelterwood harvesting seems to be beneficial for the species by opening up otherwise closed canopy cover for foraging. In doing so, consequences to species such as northern goshawk and American marten must be evaluated. Specific mitigation measures for the great gray owl, within the range of the northern spotted owl, include the following: provide a no-harvest buffer of 300 feet around meadows and natural openings and establish 1/4-mile protection zones around known nest sites. Within one year of the signing of the Record of Decision for these standards and guidelines, develop and implement a standardized protocol for surveys; survey for nest locations using the protocol. Protect all future discovered nest sites as previously described.

Managed Late-Successional Areas

Description

Managed late-successional areas are similar to Late-Successional Reserves but are identified for certain owl activity centers on the eastside where regular and frequent fire is a natural part of the ecosystem. Certain silvicultural treatments and fire hazard reduction treatments are permitted to help prevent complete stand destruction from large catastrophic events such as high intensity, high severity fires; or disease or insect epidemics.

Silviculture

Management activities proposed are subject to review. This review is especially important because innovative silvicultural techniques may be applied to manage suitable northern spotted owl habitat through time.

Managed Late-Successional Areas are identified in areas where regular and frequent fire is a natural part of the ecosystem. The objective for these areas is to produce and maintain an optimum level of late-successional and old-growth stands on a landscape scale. In these designated areas, certain silvicultural treatments and fire hazard reduction treatments will be allowed to help prevent complete stand destruction from large catastrophic events such as high intensity, high severity fires; or disease or insect epidemics.

Silviculture, salvage, and other multiple-use activities for these areas always should be guided by the objective of maintaining adequate amounts of suitable habitat.

Management Assessment

Each Managed Late-successional Area or group of smaller Managed Late-successional Areas should have a management assessment, as described for Late-Successional Reserves.

Multiple-Use Activities Other Than Silviculture

Standards and guidelines for multiple-use activities other than silviculture, which are found in the standards and guidelines for Late-Successional Reserves, also apply to managed late-successional areas.

Protection Buffers

The following standards and guidelines incorporated from the Scientific Analysis Team Report will result in adding unmapped areas to Managed Late-Successional Areas that should be managed as indicated below. These standards and guidelines are to be applied wherever the species occurs outside of designated areas. The following rare and locally endemic species are likely to be assured viability if they occur within designated areas. However, there might be occupied locations outside these areas that will be important to protect as well. Protocols for surveys will be developed that will ensure a high likelihood of locating these occupied sites, and such surveys will be conducted prior to ground-disturbing activities within the known or suspected ranges and within the habitat types or vegetation communities occupied by these species, according to the implementation schedule for Survey and Manage components 1, 2, 3, of these standards and guidelines. When located, the occupied sites need to be protected as follows:

Nonvascular Plants:

Buxbaumia piperi, B. viridis, Rhizomnium nudum, Schistostega pennata, **and** ***Tetraphis geniculata*** **(Mosses)** - Most of these species are fairly rare (the exception is *B. piperi*). They occur on rotten logs and some organic soil, and are shade dependent, occurring in old-growth forests. Mitigation activities include surveying to determine presence and distribution; and, where located, maintaining decay class 3, 4, and 5 logs and greater than 70 percent closed-canopy forest habitats for shade. Shelterwood and thinning prescriptions for timber harvest will cause their demise, as logs dry out. The implementation schedule for this species is the same as for survey and manage components 1 and 3.

Polyozellus multiplex **(Fungus)** - Ecologically, this mushroom was considered in the same species group as *Albatrellus caeryliopus* and others, listed earlier in the SAT Report under species aided by marbled murrelet mitigation measures. However, *P. multiplex* occurs in higher elevations of the Cascades in silver fir

and mixed conifer (and is thus outside the range of marbled murrelet mitigations). It can be locally abundant and is a mycorrhizal species important to forest health. Like its group associates, it is a good indicator of old-growth forests. Mitigation activities for this species include conducting surveys to define its distribution, and studies to assess its habitat requirements. The implementation schedule for this species is the same as for survey and manage components 1 and 3.

Amphibians:

Del Norte Salamander - This species occurs in talus slopes protected by overstory canopy that maintains cool, moist conditions on the ground. The species is a slope-valley inhabitant, and sometimes occurs in high numbers near riparian areas. Riparian Reserves, in combination with Late-Successional Reserves and other reserves, will offer some protection to the species but significant numbers also occur in upland areas. Additional mitigation options in this upland matrix include identifying locations (talus areas inhabited by the species) by using a standardized survey protocol, then protecting the location from ground-disturbing activities. Designate a buffer of at least the height of one site-potential tree or 100-feet horizontal distance, whichever is greater, surrounding the location. Within the site and its surrounding buffer, maintain 40 percent canopy closure and avoid any activities that will directly disrupt the surface talus layer. Partial harvest within the buffer may be possible if 40 percent canopy closure can be maintained; in such cases, tree harvest must be conducted using helicopters or high-lead cable systems to avoid compaction or other disturbance of talus. The implementation schedule for this species is the same as for survey and manage components 1 and 2.

Management Prescriptions Developed Through the Forest Planning Process

VII. LATE-SUCCESSIONAL RESERVES and THREATENED, ENDANGERED, and SELECTED SENSITIVE SPECIES

A. Objective

The purpose of this prescription is to provide special management for Late-Successional Reserves and Threatened and Endangered (T&E) species. It also includes special, selected sensitive wildlife species which are primarily dependent on late seral stage conditions. This prescription also emphasizes retention and enhancement of sensitive plant species, old-growth vegetation, and hardwoods. Sensitive fish and wildlife species, which are dependent on riparian areas, will be managed in accordance with the standards and guidelines in Riparian Reserves.

B. Management Practices

Emphasized:

Late-Successional Ecosystem Management (Old-Growth)

Habitat Management - Sensitive and Endemic Plants

Wildlife Habitat Management - Existing T&E Species

Wildlife Habitat Management - Sensitive Animals

Permitted:

Heritage Resource Management - Archaeological and Historical Sites

Fuels Reduction and Management

Integrated Pest Management

Livestock Grazing

Minerals Development

Road Construction and Reconstruction

Semi-Primitive Non-Motorized Recreation

Semi-Primitive Motorized Recreation

Streamside and Wetlands Management

Trail Construction and Reconstruction

Vegetation Treatment by Burning

Vegetation Treatment by mechanical/manual/chemical methods to protect forest resources from loss to wildfire, pathogens and insects.

Wildlife Habitat Management - Consumptive Species

Wildlife Habitat Management - Non-Consumptive Species

C. Description of Areas Where Prescription VII Will Be Applied

This prescription applies to known sites and/or territories of T&E or special, selected sensitive species which occur on the Forests. The areas mapped are the Late-Successional Reserves and the Managed Late-successional Areas from the ROD. In addition there are bald eagle and peregrine falcon areas mapped. Unmapped areas where this prescription applies are defined above.

D. Standards and Guidelines

1. Treatment of fuels created by project activities will be determined during ecosystem management planning.
2. Proposed minerals development will be reviewed on a case-by-case basis to determine effects on species within this prescription.
3. Management activities should be compatible with Semi-Primitive Non-Motorized or Semi-Primitive Motorized Recreation Opportunity Spectrum (ROS) guidelines.
4. Off-highway vehicle (OHV) use may occur only on designated trails. This use will be located and scheduled to avoid conflicts with wildlife objectives. Refer to the OHV Management Plan map for specific use areas.
5. Maintain dead/down material, hardwoods, and snags at naturally occurring levels.

Bald Eagles

6. Maintain and/or enhance the habitat necessary to provide for 32 pair of bald eagles (Shasta-Trinity prorated share of the Regional Recovery Plan).
7. Survey populations and habitat annually to determine status and trend.
8. Update or develop and implement management plans for all known and newly discovered nesting and roosting sites. Such plans will have site specific management direction established for the benefit of the bald eagles and will be coordinated with the Bald Eagle Recovery Plan.

Peregrine Falcons

9. Maintain and/or enhance the habitat necessary to provide for 9 pair of peregrine falcons (Shasta-Trinity share of the Regional Recovery Plan).
10. Survey populations and habitat annually to determine status and trend.
11. Develop and implement specific territory management plans for all known and future sites necessary for population viability. These plans will be coordinated with the Peregrine Falcon Recovery Plan.

Goshawks

12. Exclude management activities within occupied nest stands during the nesting period.

Sensitive Plants

13. Conduct inventories of known populations, habitat analysis, and field reconnaissance for potential populations in project influence zones.
14. Known sensitive plants, and those identified in the future, will be afforded the protection necessary to maintain or increase populations. Suitable habitat will be maintained or increased at a level that will assure the successful survival of the species throughout their range.
15. Modify projects so that sensitive plants will not be jeopardized; document such action. If actions that may have an adverse effect on sensitive species cannot be avoided, the activity will be deferred until such time as the affect of the proposed action can be assessed. Subsequent action will follow the recommendation resulting from such study, (i.e., protection, mitigation or action as planned).
16. Information pertaining to numbers, distribution, population dynamics, and response to the management of Forest sensitive plant species will be recorded and communicated to the Regional Office annually. Forest personnel will make recommendations to the Region for status revision or retention.
17. Once Species Management Guides have been developed, recommend that identified critical habitat be withdrawn from mineral entry.
18. Attempt to acquire identified critical habitat through land exchange.
19. Permit livestock grazing within established allotments where information shows that grazing is compatible with the maintenance of sensitive plant habitat.

Standards and Guidelines from the ROD

Administratively Withdrawn Areas are areas that the ROD and its standards and guidelines deferred to the direction in Forest Plans.

Management Prescriptions Developed Through the Forest Planning Process

I. UNROADED NON-MOTORIZED RECREATION

A. Objective

The purpose of this prescription is to provide for semi-primitive non-motorized recreation opportunities in unroaded areas outside existing Wildernesses while maintaining predominantly natural-appearing areas with only subtle modifications. Special recreational and visual values, fisheries, and riparian resources are emphasized. Also emphasized in this prescription is retention of old-growth vegetation and management of wildlife species requiring late seral stage conditions.

B. Management Practices

Emphasized:

Coldwater Fishery Habitat Management

Fisheries Habitat Management - Sensitive Fish

Habitat Management - Sensitive and Endemic Plants

Semi-Primitive Non-Motorized Recreation

Streamside and Wetlands Management

Trail Construction and Reconstruction

Wildlife Habitat Management - Consumptive Species

Wildlife Habitat Management - Non-Consumptive Species

Wildlife Habitat Management - Sensitive Animals

Permitted:

Heritage Resource Management - Archaeological and Historical Sites

Heritage Resource Management - Native American Sacred Places

Fire Management

Integrated Pest Management

Livestock Grazing

Minerals Development

Soils and Water Improvement

Vegetation Treatment by Burning

Vegetation Treatment by mechanical/manual/chemical methods to protect forest resources from loss to wildfire, pathogens and insects

C. Description of Areas Where Prescription I Will Be Applied

These areas are generally 2,500 to 5,000 acres in size unless contiguous to Wilderness. There is little evidence of roads, and the areas are normally closed to motorized travel. The natural setting may have some subtle modifications that will be noticed but will not draw the attention of an observer in the area. Structures are rare and isolated. Relatively few parties per day will be encountered on trails, and even fewer parties will be visible at camp sites. On-site restrictions and controls are present, but subtle. Typical activities include hiking, cross-country skiing, horseback riding, rafting, canoeing, swimming, hunting, fishing, camping, and sightseeing.

This prescription also applies to designated Wild segments of Wild and Scenic Rivers outside of Wildernesses. These rivers, or sections of rivers, and adjacent areas are free of impoundments and generally inaccessible except by trail.

D. Standards and Guidelines

1. No new roads will be constructed for Forest Service generated activities.
2. Trails should be located, designed, constructed, and maintained so that they are suitable for foot and horseback travel. Trail density should provide a low frequency of user contact.
3. Blasting may be used for trail maintenance/construction and fish barrier removal.
4. Treatment of natural fuels or fuels resulting from resource activities will be determined during ecosystem analysis.

5. Wildfire suppression tactics will favor the use of natural barriers and low-impact suppression techniques. Use small camps and staging areas and provide for their return to as near a pre-use condition as possible.
6. Camp sites should be primitive in nature. On-site restrictions and controls can be present, but subtle.
7. Management activities will be compatible with Semi-Primitive Non-Motorized Recreation Opportunity Spectrum (ROS) guidelines.
8. Identify and develop interpretive publications and exhibits which explain recreation features, management practices and benefits. Special emphasis should be on nationally significant wild rivers.
9. Retain late seral stage forest stands.
10. Manage to meet adopted Visual Quality Objectives (VQOs) of retention and partial retention as indicated on the adopted VQO map. VQOs will be evaluated from sensitive travel corridors both inside and outside the prescription area.
11. Use of mechanized equipment will be permitted for the following reasons:
    a. Helicopter access to snow survey courses until such time as corollary courses are established outside of the Prescription I area;
    b. Helicopter access to remove aircraft wreckage;
    c. Motorized medical rescue equipment for search or evacuation of dead or severely injured persons or livestock; motorized equipment to provide for public safety;
    d. Chainsaw, rock drill, and hand portable yarder as necessary to meet the objectives of the prescription;
    e. Mineral activities as permitted;
    f. Aerial stocking of fish;
    g. Motorized equipment, including aircraft, for firefighting and law enforcement;
    h. Transportation of material, supplies, and personnel for range management activities, if such access has a history of prior use;
    i. Management of insects, disease, and other pests interfering with the attainment of ecosystem health, recreation and non-recreation values;
    j. Enhancement of cliff faces for peregrine falcon nesting sites;
    k. Fuels management.
12. Proposals for removal of dead, dying, or high risk trees, due to catastrophic events, are subject to additional site-specific environmental analysis at the ecosystem planning level.
13. Maintain snags, dead/down material, and hardwoods at naturally occurring levels.
14. Use this Prescription to help provide additional habitat and connecting corridors for fisher and marten and to provide additional habitat for goshawk.

II. LIMITED ROADED MOTORIZED RECREATION

A. Objective

The purpose of this prescription is to provide for semi-primitive motorized recreation opportunities, while maintaining predominantly natural-appearing areas with some modifications. Recreational and visual resources are important values; semi-primitive activities are emphasized. Managing for old-growth vegetation and wildlife species requiring these late seral stages is also an important consideration.

B. Management Practices

Emphasized:

Coldwater Fishery Habitat Management

Fisheries Habitat Management - Sensitive Fish

Habitat Management - Sensitive and Endemic Plants

Semi-Primitive Motorized Recreation

Streamside and Wetlands Management

Trail Construction and Reconstruction

Warmwater Fishery Habitat Management

Wildlife Habitat Management - Consumptive Species

Wildlife Habitat Management - Non-Consumptive Species

Wildlife Habitat Management - Sensitive Animals

Permitted:

Heritage Resource Management - Archaeological and Historical Sites

Heritage Resource Management - Native American Sacred Places

Fire Management

Integrated Pest Management

Livestock Grazing

Minerals Development

Road Construction and Reconstruction

Soils and Water Improvement

Vegetation Treatment by Burning

Vegetation Treatment by mechanical/manual/chemical methods to protect forest resources from loss to wildfire, pathogens and insects.

C. Description of Areas Where Prescription II Will Be Applied

These areas are generally 2,500 to 5,000 acres in size. There are a few service level D and a limited number of service level C roads. The area is open to motorized travel primarily by off-highway vehicles (OHV) on designated routes. The natural setting may have some noticeable modifications but they will not draw the attention of an observer in the area. Structures are rare and isolated. Relatively few parties per day will be encountered on trails and even fewer parties will be visible at camp sites. On-site restrictions and controls are present, but subtle. Typical activities include OHVs, snowmobiles, power boating, hiking, cross-country skiing, horseback riding, rafting, canoeing, swimming, hunting, fishing, camping, and sightseeing.

This prescription also applies to designated Scenic segments of Wild and Scenic Rivers. These rivers, or sections of rivers, and adjacent areas are free of impoundments and generally accessible by a limited number of trails or roads.

D. Standards and Guidelines

1. Road density for existing and new roads will be planned and managed to ensure that user contact does not exceed low to moderate levels.
2. Trails should be located, designed, constructed, and maintained so that they are suitable for their intended purpose. Trail density and use will be limited to ensure low to moderate frequency of user contact. Those trails qualifying under Item 9 will be open to motorized vehicles.
3. Blasting may be used for trail maintenance/construction and fish barrier removal.
4. Shaded fuel breaks may be constructed and maintained consistent with ecosystem management plans. Pre-attack facilities are limited to safety zones and helispots.
5. Treatment of fuels created by project activities will be determined during ecosystem planning.
6. Wildfire suppression tactics will favor use of low-impact techniques.
7. Campsites and wildfire suppression camps should be primitive in nature. On-site restrictions and controls can be present, but subtle.
8. Management activities will be compatible with Semi-Primitive Motorized Recreation Opportunity Spectrum (ROS) guidelines.
9. Designate suitable trails and areas for OHV use. Such use should be located and scheduled to minimize conflicts with other recreation use and wildlife needs. Refer to the OHV Management Plan map for special use areas.
10. Identify and develop interpretive publications and exhibits which explain recreation features, management practices and benefits. Emphasis should be on nationally significant scenic rivers and recreation areas.
11. Design vegetative manipulation to meet recreation, wildlife, and forest health objectives within the context of an ecosystem management plan.
12. Adjacent management activities that are seen from within developed recreation sites will meet a VQO of retention in the foreground and partial retention in the middleground. The area within the developed recreation site will meet a VQO of retention.
13. The use of mechanized equipment is permitted.
14. Manage hardwoods for sustainability on a landscape basis consistent with desired future ecosystem conditions.
15. Maintain an average of 20 tons of unburned dead/down material per acre. Preference is to have a portion of this tonnage in large

material (i.e., 6 to 8 logs over 10 feet long at the largest available diameter).

16. Use this Prescription to help provide additional habitat and connecting corridors for fisher and marten and to provide additional habitat for goshawk.

IV. ROADED, HIGH DENSITY RECREATION

A. Objective

The purpose of this prescription is to provide for areas which are characterized by a substantially modified natural environment. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. Facilities are designed for use by a large number of people. Recreational and visual resources are important values with rural recreation emphasized.

B. Management Practices

Emphasized:

Coldwater Fishery Habitat Management

Developed Site Management

Fuels Reduction and Management

Integrated Pest Management

Road Construction and Reconstruction

Rural Recreation

Trail Construction and Reconstruction

Warmwater Fishery Habitat Management

Permitted:

Heritage Resource Management - Archaeological and Historical Sites

Minerals Development

Soils and Water Improvement

Streamside and Wetlands Management

C. Description of Areas Where Prescription IV Will Be Applied

The natural environment is substantially modified to the point that developments are clearly obvious to travelers in and around these visually sensitive areas. Structures are readily evident; they may be widely scattered or occur in small dominant clusters. Pedestrians or other slow-moving observers are constantly within view of culturally changed landscapes. The social setting encourages moderate to high visitor contact. Controls, regulations, and law enforcement activities are obvious. Typical activities or facilities include: camping, fishing, information centers, aerial tramways, convenience stores, resorts, marinas, downhill ski areas, and picnic sites.

D. Standards and Guidelines

1. New roads and trails will be constructed for the purpose of accessing fishing trails, interpretive trails, or providing links to primary trails. These roads and trails will be located, designed, constructed, and maintained to standards which complement Rural Recreation Opportunity Spectrum (ROS) activities.
2. Treatment of natural fuels or fuels resulting from resource activities will be determined during ecosystem planning.
3. Standard range management practices (herding, fencing) will be applied to keep livestock out of developed recreation sites. This is especially true when conflicts occur between recreation and grazing use.
4. Locate and schedule OHV use to minimize conflicts.
5. Management activities should be accomplished in accordance with Rural Recreation Opportunity Spectrum (ROS) guidelines.
6. Include developed recreation sites in interpretive plans. Develop and maintain incentives to reduce vandalism. Coordinate operation and maintenance of interpretive facilities with other functions. Coordinate placement of interpretive services with developed site planning, construction, rehabilitation or major maintenance. Work with special use permittees to keep the public informed about management policies, practices, and programs. Establish interpretive facilities as indicated in interpretive plans.
7. Provide information and interpretive services to direct visitors to their recreation destinations. Acquaint the visiting public with the significant historical and cultural features, plants, wildlife, and management programs on the Forests.
8. Through hazardous tree evaluation and control, provide an acceptable level of public safety with the least amount of damage and impact to the environment.

9. In developed recreation areas keep conifer stocking at levels which will reduce mortality.
10. In developed recreation and other high value areas treat conifer stumps immediately after tree felling to prevent infection by *Heterobasidion annosum*
11. Areas within developed recreation sites will meet a VQO of modification. Management activities that are seen from developed recreation sites will meet a VQO of retention in the foreground and partial retention in the middleground.
12. Areas within developed site boundaries are not subject to snag, dead/down material, and hardwood standards due to safety considerations and recreation use.

X. SPECIAL AREA MANAGEMENT

A. Objective

This prescription provides for protection and management of special interest areas (SIAs) and research natural areas (RNAs). Protection and management of associated amenity values, including unique plant, animal, and aquatic systems, will be consistent with special area objectives. These standards apply to all special areas. If the special area is located in an allocation more restrictive than an Administrative Withdrawal the additional restrictions also apply.

B. Management Practices

Emphasized:

Habitat Management - Sensitive and Endemic Plants

Research Natural Area Establishment and Management

Special Interest Area Establishment and Management

Permitted:

Heritage Resource Management - Archaeological and Historical Sites

Heritage Resource Management - Native American Sacred Places

Fire Management

Livestock Grazing

Minerals Development (SIAs)

Semi-Primitive Non-Motorized Recreation

Streamside and Wetlands Management

Trail Construction and Reconstruction

Wildlife Habitat Management - Existing T&E Species

Wildlife Habitat Management - Sensitive Animals

C. Description of Areas Where Prescription X Will Be Applied

This prescription applies to RNAs which are currently established or are proposed Forest candidates. These are areas which: (1) contribute to the preservation of examples of all significant natural ecosystems for the purposes of research and ecological study; (2) provide genetic diversity (gene pools); and (3) protect, where appropriate, habitats of T&E (or sensitive) species of plants and animals. This prescription also applies to proposed SIAs.

D. Standards and Guidelines

1. No natural fuels treatment or construction of shaded fuel breaks will be made within RNAs without appropriate planning and approval by the Research Natural Area Committee (RNAC).
2. Wildfire suppression tactics will favor low impact techniques and minimize mechanical disturbance.
3. Allow off-highway vehicle (OHV) use on existing, designated roads only. Where no existing roads occur, prohibit OHV use. Close roads if necessary to maintain RNA and SIA values.
4. Management activities should be compatible with Semi-Primitive Non-Motorized Recreation Opportunity Spectrum (ROS) guidelines.
5. Once RNAs have been classified by the Regional Forester, recommend that they be withdrawn from mineral location and leasing.
6. Permit livestock grazing in SIAs within established allotments as long as that use preserves and does not detract from the original values for which the area was established. Discontinue livestock grazing in RNAs.
7. Develop a management plan for each RNA and SIA to safeguard the particular values while encouraging intended uses.

8. Monitor the condition of each SIA annually and each RNA bi-annually.
9. Identify and give priority to projects based on special area evaluations. Identify objectives, audiences, messages, methods, and requirements for each. Prepare maps, brochures, and interpretive devices to explain special features and reduce area damage.
10. Management activities within RNAs should be compatible with the objective of the establishment report and any guidelines developed by RNAC.
11. Special use permits or cooperative agreements will be used to coordinate planned research activities within RNAs. These will be executed between the research proponent and Station Director, with review and approval by the District Ranger and Forest Supervisor. Permits for activities within designated or recommended wildernesses will be approved by the Regional Forester.
12. When possible, acquire private land within RNA and SIA boundaries.
13. Manage to meet the designated VQO for the management area.
14. Use this Prescription to help provide additional habitat for fisher, marten, and goshawk.

XI. HERITAGE RESOURCE MANAGEMENT

A. Objective

The primary theme of this prescription is to protect designated cultural resource values, interpret significant archaeological and historical values for the public, and encourage scientific research of these selected properties. Visual resources, water quality, wildlife habitat, and vegetation will be protected.

B. Management Practices

Emphasized:
Heritage Resource Management - Archaeological and Historical Sites

Permitted:
Habitat Management - Sensitive and Endemic Plants

Integrated Pest Management

Livestock Grazing

Semi-Primitive Motorized Recreation

Semi-Primitive Non-Motorized Recreation

Soils and Water Improvement

Streamside and Wetlands Management

Vegetation Treatment by Burning

Wildlife Habitat Management - Existing T&E Species

Wildlife Habitat Management - Sensitive Animals

C. Description of Areas Where Prescription XI Will Be Applied

This prescription will be applied to specific sites within areas that have been determined to be eligible for the National Register of Historic Places, and which have one or more of the following attributes:

- The site has known or potential scientific values that are highly important or unique and are conducive to long-term study.
- The site has a potential for interpretation of cultural resource values to Forest visitors.
- The site has cultural importance to Native Americans.

D. Standards and Guidelines

1. Heritage resources will be protected primarily by locating trails and camp sites away from sensitive areas. Recreational activities and development will be limited in such a way that visitor use does not take place on or in the immediate vicinity of cultural resources, unless it is an interpretive activity.
2. Archaeological and ethnographic surveys will be designed to inventory the area so that all cultural resources are located and recorded.
3. All cultural resources associated with this prescription will have a protection plan that specifies the need for signing, patrolling, flagging, etc. Periodic monitoring of sites will also be conducted, as needed, to determine success of protection efforts. (Refer to the Monitoring and Evaluation Requirements in Chapter 5).
4. Consult with Native Americans so that management direction can be developed for those areas having cultural importance and that they may participate in watershed/project planning to assure that Native American concerns are addressed as part of the process.

5. Historic structures will be operated and maintained in accordance with standards and guidelines issued by the Department of the Interior and the Advisory Council on Historic Preservation (ACHP). Appropriate programmatic agreements and treatment plans will be used whenever possible.
6. No new road or trail construction will be allowed unless approved by the Forest Supervisor. Reconstruction will be allowed only if adverse effects are not created.
7. Implement wildfire suppression strategies to provide the least possible adverse impacts on cultural resource values.
8. Off-highway vehicle (OHV) use will be prohibited.
9. Identify and give priority to projects based on interpretive plans. Prepare brochures and displays to explain cultural features and reduce area damage.
10. Management activities should be compatible with Semi-Primitive Non-Motorized or Semi-Primitive Motorized Recreation Opportunity Spectrum (ROS) guidelines dependent on the level of interpretation proposed for the sites.
11. Manage to meet visual quality objectives (VQOs) of preservation, retention, and partial retention of the site and the immediate area.
12. All projects, proposals, and activities must proceed in full compliance with Section 106 of the National Historic Preservation Act, including Special Use Permits.

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Standards and Guidelines from the ROD

Aquatic Conservation Strategy Objectives

1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.
2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.
3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.
4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.
5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.
6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.
7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.
8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.
9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

Watershed Analysis

The prescribed widths of Riparian Reserves apply to all watersheds until watershed analysis is completed, a site-specific analysis is conducted and described, and the rationale for final Riparian Reserve boundaries is presented through the appropriate NEPA decision-making process.

Regardless of stream type, changes to Riparian Reserves must be based on scientifically sound reasoning, and be fully justified and documented.

Watershed analysis is required in Key Watersheds, for roadless areas in non-Key Watersheds, and Riparian Reserves prior to determining how proposed land management activities meet Aquatic Conservation Strategy objectives. Watershed analyses must be completed before initiating actions within a Key Watershed, except that in the short term, until watershed analysis can be completed, minor activities such as those that will be categorically excluded under National Environmental Policy Act regulations (except timber harvest) may proceed if they are consistent with Aquatic Conservation Strategy objectives and Riparian Reserves and standards and guidelines are applied. Timber harvest, including salvage, cannot occur in Key Watersheds without a watershed analysis. Ultimately, watershed analyses should be conducted in all watersheds on federal lands as a basis for ecosystem planning and management.

Watershed analysis will focus on collecting and compiling information within the watershed that is essential for making sound management decisions. It will be an analytical process, not a decision-making process with a proposed action requiring NEPA documentation.

Description - Riparian Reserve Widths

Riparian Reserves are specified for five categories of streams or waterbodies as follows:

1. **Fish-bearing Streams** - Riparian Reserves consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge,

or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet total, including both sides of the stream channel), whichever is greatest.

2. **Permanently Flowing Nonfish-bearing Streams** - Riparian Reserves consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance (300 feet total, including both sides of the stream channel), whichever is greatest.

3. **Constructed Ponds and Reservoirs, and Wetlands Greater Than 1 Acre** - Riparian Reserves consist of the body of water or wetland and: the area to the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or the extent of unstable and potentially unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the wetland greater than 1 acre or the maximum pool elevation of constructed ponds and reservoirs, whichever is greatest.

4. **Lakes and Natural Ponds** - Riparian Reserves consist of the body of water and: the area to the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or to the extent of unstable and potentially unstable areas, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance, whichever is greatest.

5. **Seasonally Flowing or Intermittent Streams, Wetlands Less Than 1 Acre, and Unstable and Potentially Unstable Areas** - This category applies to features with high variability in size and site-specific characteristics. At a minimum, the Riparian Reserves must include:

   The extent of unstable and potentially unstable areas (including earthflows),

   The stream channel and extend to the top of the inner gorge,

   The stream channel or wetland and the area from the edges of the stream channel or wetland to the outer edges of the riparian vegetation, and

   Extension from the edges of the stream channel to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest.

A site-potential tree height is the average maximum height of the tallest dominant trees (200 years or older) for a given site class.

Intermittent streams are defined as any nonpermanent flowing drainage feature having a definable channel and evidence of annual scour or deposition. This includes what are sometimes referred to as ephemeral streams if they meet these two physical criteria.

Standards and Guidelines for Resource Activities

As a general rule, Standards and Guidelines for Riparian Reserves prohibit or regulate activities in Riparian Reserves that retard or prevent attainment of the Aquatic Conservation Strategy objectives. Watershed analysis and appropriate NEPA compliance is required to change Riparian Reserve boundaries in all watersheds.

1. Timber Management

a. Prohibit timber harvest, including fuelwood cutting, in Riparian Reserves, except as described below. Riparian Reserve acres shall not be included in calculations of the timber base.

   (1) Where catastrophic events such as fire, flooding, volcanic, wind, or insect damage result in degraded riparian conditions, allow salvage and fuelwood cutting if required to attain Aquatic Conservation Strategy objectives.

   (2) Salvage trees only when watershed analysis determines that present and future coarse woody debris needs are met and other Aquatic Conservation Strategy objectives are not adversely affected.

   (3) Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives.

2. Roads Management

a. Cooperate with Federal, state, and county agencies to achieve consistency in road design, operation, and maintenance necessary to attain Aquatic Conservation Strategy objectives.

b. For each existing or planned road, meet Aquatic Conservation Strategy objectives by:

   (1) minimizing road and landing locations in Riparian Reserves.

   (2) completing watershed analyses (including appropriate geotechnical analyses)

prior to construction of new roads or landings in Riparian Reserves.

(3) preparing road design criteria, elements, and standards that govern construction and reconstruction.

(4) preparing operation and maintenance criteria that govern road operation, maintenance, and management.

(5) minimizing disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow.

(6) restricting sidecasting as necessary to prevent the introduction of sediment to streams.

(7) avoiding wetlands entirely when constructing new roads.

c. Determine the influence of each road on the Aquatic Conservation Strategy objectives through watershed analysis. Meet Aquatic Conservation Strategy objectives by:

(1) reconstructing roads and associated drainage features that pose a substantial risk.

(2) prioritizing reconstruction based on current and potential impact to riparian resources and the ecological value of the riparian resources affected.

(3) closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential effects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs.

d. New culverts, bridges and other stream crossings shall be constructed, and existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions will be improved, to accommodate at least the 100-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian resources affected. Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.

e. Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping will increase sediment delivery to streams or where outsloping is unfeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes.

f. Provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams.

g. Develop and implement a Road Management Plan or a Transportation Management Plan that will meet the Aquatic Conservation Strategy objectives. As a minimum, this plan shall include provisions for the following activities:

(1) inspections and maintenance during storm events.

(2) inspections and maintenance after storm events.

(3) road operation and maintenance, giving high priority to identifying and correcting road drainage problems that contribute to degrading riparian resources.

(4) traffic regulation during wet periods to prevent damage to riparian resources.

(5) establish the purpose of each road by developing the Road Management Objective.

3. Grazing Management

a. Adjust grazing practices to eliminate impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives. If adjusting practices is not effective, eliminate grazing.

b. Locate new livestock handling and/or management facilities outside Riparian Reserves. For existing livestock handling facilities inside the Riparian Reserve, ensure that Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, require relocation or removal of such facilities.

c. Limit livestock trailing, bedding, watering, loading, and other handling efforts to those areas and times that will ensure Aquatic Conservation Strategy objectives are met.

4. Recreation Management

a. New recreational facilities within Riparian Reserves, including trails and dispersed sites, should be designed to not prevent meeting Aquatic Conservation Strategy objectives. Construction of these facilities should not prevent future attainment of these objec-

tives. For existing recreation facilities within Riparian Reserves, evaluate and mitigate impact to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy objectives.

b. Adjust dispersed and developed recreation practices that retard or prevent attainment of Aquatic Conservation Strategy objectives. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective, eliminate the practice or occupancy.

c. Wild and Scenic Rivers and Wilderness management plans will address attainment of Aquatic Conservation Strategy objectives.

5. Minerals Management

a. Require a reclamation plan, approved Plan of Operations, and reclamation bond for all minerals operations that include Riparian Reserves. Such plans and bonds must address the costs of removing facilities, equipment, and materials; recontouring disturbed areas to near pre-mining topography; isolating and neutralizing or removing toxic or potentially toxic materials; salvage and replacement of topsoil; and seedbed preparation and revegetation to meet Aquatic Conservation Strategy objectives.

b. Locate structures, support facilities, and roads outside Riparian Reserves. Where no alternative to placing facilities in Riparian Reserves exists, locate them in a way compatible with Aquatic Conservation Strategy objectives. Road construction will be kept to the minimum necessary for the approved mineral activity. Such roads will be constructed and maintained to meet roads management standards and to minimize damage to resources in the Riparian Reserve. When a road is no longer required for mineral or land management activities, it will be closed, obliterated, and stabilized.

c. Prohibit solid and sanitary waste facilities in Riparian Reserves. If no alternative to locating mine waste (waste rock, spent ore, tailings) facilities in Riparian Reserves exists, and releases can be prevented, and stability can be ensured, then:

(1) analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.

(2) locate and design the waste facilities using best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in Riparian Reserves.

(3) monitor waste and waste facilities after operations to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.

(4) reclaim waste facilities after operations to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.

(5) require reclamation bonds adequate to ensure long-term chemical and physical stability of mine waste facilities.

d. For leasable minerals, prohibit surface occupancy within Riparian Reserves for oil, gas, and geothermal exploration and development activities where leases do not already exist. Where possible, adjust the operating plans of existing contracts to eliminate impacts that retard or prevent the attainment of Aquatic Conservation Strategy objectives.

e. Salable mineral activities such as sand and gravel mining and extraction within Riparian Reserves will occur only if Aquatic Conservation Strategy objectives can be met.

f. Include inspection and monitoring requirements in mineral plans, leases or permits. Evaluate the results of inspection and monitoring to effect the modification of mineral plans, leases and permits as needed to eliminate impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives.

6. Fire/Fuels Management

a. Design fuel treatment and fire suppression strategies, practices, and activities to meet Aquatic Conservation Strategy objectives, and to minimize disturbance of riparian ground cover and vegetation. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuels management activities could be damaging to long-term ecosystem function.

b. Locate incident bases, camps, helibases, staging areas, helispots and other centers for incident activities outside Riparian Reserves. If the only suitable location for such activities is within the Riparian Reserve, an exemption may be granted following review and recommendation by a resource advisor. The advisor will prescribe the location, use conditions, and rehabilitation requirements. Use an interdisciplinary team to predetermine suitable incident base and helibase locations.

c. Minimize delivery of chemical retardant, foam, or additives to surface waters. An exception may be warranted in situations where overriding immediate safety imperatives exist, or, following review and recommendation by a resource advisor, when an escape will cause more long-term damage.

d. Design prescribed burn projects and prescriptions to contribute to attainment of Aquatic Conservation Strategy objectives.

e. Immediately establish an emergency team to develop a rehabilitation treatment plan needed to attain Aquatic Conservation Strategy objectives whenever Riparian Reserves are significantly damaged by wildfire or a prescribed fire burning outside prescribed parameters.

f. Other - In Riparian Reserves, the goal of wildfire suppression is to limit the size of all fires. When fire management plans are completed and approved in conjunction with ecosystem analysis, some natural fires may be allowed to burn under prescribed conditions. Rapidly extinguishing smoldering coarse woody debris and duff should be considered to preserve these ecosystem elements. In Riparian Reserves, water drafting sites should be located and managed to minimize adverse effects on riparian habitat and water quality, as consistent with Aquatic Conservation Strategy objectives.

7. Lands

a. Identify in-stream flows needed to maintain riparian resources, channel conditions, and fish passage.

b. **Tier 1 Key Watersheds**: For hydroelectric and other surface water development proposals, require in-stream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies. During relicensing of hydroelectric projects, provide written and timely license conditions to the Federal Energy Regulatory Commission (FERC) that require flows and habitat conditions that maintain or restore riparian resources and channel integrity. Coordinate relicensing projects with the appropriate state agencies.

For all other watersheds: For hydroelectric and other surface water development proposals, give priority emphasis to in-stream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies. During re-licensing of hydroelectric projects, provide written and timely license conditions to FERC that emphasize in-stream flows and habitat conditions that maintain or restore riparian resources and channel integrity. Coordinate relicensing projects with the appropriate state agencies.

c. Locate new support facilities outside Riparian Reserves. For existing support facilities inside Riparian Reserves that are essential to proper management, provide recommendations to FERC that ensure Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, provide recommendations to FERC that such support facilities should be relocated. Existing support facilities that must be located in the Riparian Reserves will be located, operated, and maintained with an emphasis to eliminate adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives.

d. For activities other than surface water developments, issue leases, permits, rights-of-way, and easements to avoid adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives. Adjust existing leases, permits, rights-of-way, and easements to eliminate adverse effects that retard or prevent the attainment of Aquatic Conservation Strategy objectives. If adjustments are not effective, eliminate the activity. Priority for modifying existing leases, permits, rights-of-way and easements will be based on the actual or potential impact and the ecological value of the riparian resources affected.

e. Use land acquisition, exchange, and conservation easements to meet Aquatic Conservation Strategy objectives and facilitate restoration of fish stocks and other species at risk of extinction.

8. General Riparian Area Management

a. Identify and attempt to secure in-stream flows needed to maintain riparian resources, channel conditions, and aquatic habitat.

b. Fell trees in Riparian Reserves when they pose a safety risk. Keep felled trees on-site when needed to meet coarse woody debris objectives.

c. Herbicides, insecticides, and other toxicant, and other chemicals shall be applied only in a manner that avoids impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives.

d. Locate water drafting sites to minimize adverse effects on stream channel stability, sedimentation, and in-stream flows needed to maintain riparian resources, channel conditions, and fish habitat.

9. Watershed and Habitat Restoration

a. Design and implement watershed restoration projects in a manner that promotes long-term ecological integrity of ecosystems, conserves the genetic integrity of native species, and attains Aquatic Conservation Strategy objectives.

b. Cooperate with other federal, state, local, and tribal agencies, and private landowners to develop watershed-based Coordinated Resource Management Plans or other cooperative agreements to meet Aquatic Conservation Strategy objectives.

c. Do not use mitigation or planned restoration as a substitute for preventing habitat degradation.

10. Fish and Wildlife Management

a. Design and implement fish and wildlife habitat restoration and enhancement activities in a manner that contributes to attainment of Aquatic Conservation Strategy objectives.

b. Design, construct and operate fish and wildlife interpretive and other user-enhancement facilities in a manner that does not retard or prevent attainment of Aquatic Conservation Strategy objectives. For existing fish and wildlife interpretative and other user-enhancement facilities inside Riparian Reserves, ensure that Aquatic Conservation Strategy objectives are met. Where Aquatic Conservation Strategy objectives cannot be met, relocate or close such facilities.

c. Cooperate with other federal, tribal, and state wildlife management agencies to identify and eliminate wild ungulate impacts that are inconsistent with attainment of Aquatic Conservation Strategy objectives.

d. Cooperate with other federal, tribal, and state fish management agencies to identify and eliminate impacts associated with habitat manipulation, fish stocking, harvest and poaching that threaten the continued existence and distribution of native fish stocks occurring on federal lands.

11. Research

a. A variety of research activities may be ongoing and proposed in Key Watersheds and Riparian Reserves. These activities must be analyzed to ensure that significant risk to the watershed values does not exist. If significant risk is present and cannot be mitigated, study sites must be relocated. Some activities not otherwise consistent with the objectives may be appropriate, particularly if the activities will test critical assumptions of these standards and guidelines; will produce results important for establishing or accelerating vegetation and structural characteristics for maintaining or restoring aquatic and riparian ecosystems; or the activities represent continuation of long-term research. These activities should be considered only if there are no equivalent opportunities outside of Key Watersheds and Riparian Reserves.

KEY WATERSHEDS

There are Key Watersheds within the range of the northern spotted owl. Key Watersheds overlay the land allocations of designated areas and Matrix.

The Aquatic Conservation Strategy includes two designations for Key Watersheds. Tier 1 (Aquatic Conservation Emphasis) Key Watersheds contribute directly to conservation of at-risk anadromous salmonids, bull trout, and resident fish species. They also have a high potential of being restored as part of a watershed restoration program. Tier 2 (other) Key Watersheds may

not contain at-risk fish stocks, they are important sources of high quality water.

Long-term management within Key Watersheds requires watershed analysis prior to further resource management activity. In the short term, until watershed analysis can be completed, minor activities such as those that will be Categorically Excluded under National Environmental Policy Act regulations (except timber harvest) may proceed if they are consistent with Aquatic Conservation Strategy objectives and apply Riparian Reserves and standards and guidelines. Timber harvest, including salvage, cannot occur in Key Watersheds without a watershed analysis. Key Watersheds that currently contain poor quality habitat are believed to have the best opportunity for successful restoration and will receive priority in any watershed restoration program.

To protect the remaining high quality habitats, no new roads will be constructed in inventoried roadless areas in Key Watersheds. Watershed analysis must be conducted in all non-Key Watersheds that contain roadless areas before any management activities can occur within those roadless areas.

The amount of existing system and nonsystem roads within Key Watersheds should be reduced through decommissioning of roads. Road closures with gates or barriers do not qualify as decommissioning or a reduction in road mileage. If funding is insufficient to implement reductions, there will be no net increase in the amount of roads in Key Watersheds. That is, for each mile of new road constructed, at least one mile of road should be decommissioned, and priority given to roads that pose the greatest risks to riparian and aquatic ecosystems.

Standards and Guidelines for Key Watersheds

Inside Roadless Areas - No new roads will be built in remaining unroaded portions of inventoried (RARE II) roadless areas.

Outside Roadless Areas - Reduce existing system and nonsystem road mileage. If funding is insufficient to implement reductions, there will be no net increase in the amount of roads in Key Watersheds.

Key Watersheds are highest priority for watershed restoration.

Watershed analysis is required prior to management activities, except minor activities such as those Categorically Excluded under NEPA (and not including timber harvest).

Watershed analysis is required prior to timber harvest.

The following key watershed areas have been identified for the Shasta-Trinity National Forests:

1. Upper South Fork Trinity River (Hayfork Creek to Headwaters);
2. New River (Mouth to Virgin Creek);
3. North Fork Trinity River (Mouth to Headwaters);
4. Canyon Creek (Mouth to Headwaters).

Management Prescriptions Developed Through the Forest Planning Process

IX. RIPARIAN MANAGEMENT

A. Objective

The purpose of this prescription is to maintain or enhance riparian areas, wildlife and fisheries habitat, and water quality by emphasizing streamside and wetland management. Multiple resource uses and activities will occur in support of, and to the extent that they do not adversely affect the maintenance of riparian area dependent resources (e.g., fish, wildlife, water quality). Fish habitats will be maintained and enhanced along with those semi-primitive non-motorized recreation opportunities associated with riparian areas. This prescription also emphasizes retention and/or enhancement of old-growth vegetation. The retention and/or enhancement of habitat for sensitive species, such as the willow flycatcher, summer steelhead, and Trinity bristle snail, is also an important objective. This prescription also provides connective habitat for migration, dispersal, and foraging for several wildlife species.

B. Management Practices

Emphasized:

Coldwater Fishery Habitat Management

Fisheries Habitat Management - Sensitive Fish

Habitat Management - Sensitive and Endemic Plants

Semi-Primitive Non-Motorized Recreation (Perennials)

Semi-Primitive Motorized Recreation (Intermittent/Ephemerals)

Soils and Water Improvement

Streamside and Wetlands Management

Warmwater Fishery Habitat Management

Wildlife Habitat Management - Existing T&E Species

Wildlife Habitat Management - Sensitive Animals

Permitted:

Heritage Resource Management - Archaeological and Historical Sites

Heritage Resource Management - Native American Sacred Places

Integrated Pest Management

Livestock Grazing

Minerals Development

Road Construction and Reconstruction

Roaded Natural Recreation and Rural Recreation

Road Construction and Reconstruction

Trail Construction and Reconstruction

Wildlife Habitat Management - Consumptive Species

Wildlife Habitat Management - Non-Consumptive Species

C. Description of Areas Where Prescription IX Will Be Applied

The purpose of this prescription is to maintain or enhance riparian areas. This prescription will override less restrictive mapped prescriptions where riparian areas are present. Their exact location will be indicated during project planning.

D. Standards and Guidelines

There are no additional Standards and Guidelines prescribed over that prescribed above by the ROD.

Standards and Guidelines from the ROD

Provide specified amounts of coarse woody debris in Matrix management.

A renewable supply of large down logs is critical for maintaining populations of fungi, arthropods, bryophytes and various other organisms that use this habitat structure. Provision of coarse woody debris is also a key standard and guideline for American marten, fisher, two amphibians, and two species of vascular plants. The objective is to provide coarse woody debris well distributed across the landscape in a manner which meets the needs of species and provides for ecological functions. Standards and guidelines should provide for appropriate coarse woody debris quantity, quality (such as species, decay stage and size) and distribution. Models for computing expected numbers and sizes of logs should be developed for groups of plant associations and stand types which can be used as a baseline for managers to develop prescriptions for landscape management. An important factor is to provide the coarse woody debris within a forest patch so that the appropriate microclimate for various organisms that use this substrate is available. Coarse woody debris that is already on the ground needs to be retained and protected from disturbance to the greatest extent possible during logging and other land management activities that might destroy the integrity of the substrate. Scattered green trees will provide a future supply of down woody material as the stand regenerates and are important in providing for the distribution of this substrate throughout the managed landscape.

Specific measures for coarse woody debris follow. These measures are intended to be applied in Matrix forests. The intent of the measures must also be met in Adaptive Management Areas, but specific standards and guidelines are not prescribed for those areas.

1. Manage to provide a renewable supply of large down logs well distributed across the Matrix landscape in a manner that meets the needs of species and provides for ecological functions. Develop models for groups of plant associations and stand types that can be used as a baseline for developing prescriptions.
2. Coarse woody debris already on the ground should be retained and protected to the greatest extent possible from disturbance during treatment (e.g., slash burning and yarding) which might otherwise destroy the integrity of the substrate.
3. Down logs should be left within forest patches that are retained under green-tree retention guidelines in order to provide the microclimate that is appropriate for various organisms that use this substrate.

Emphasize green-tree and snag retention in Matrix management.

For many species, benefits will be greatest if trees are retained in patches rather than singly. Because very small patches do not provide suitable microclimates for many of these organisms, patches should generally be larger than 2.5 acres.

Although many species will benefit from retention of patches, others may be favored by retention of single trees. Within the minimum constraints described in item 3 below, the relative proportion of patches vs. single trees retained must reflect local knowledge of individual species needs.

Retained patches should be protected for multiple rotations to provide support for those organisms that require very old forests.

Specific measures for green tree and snag retention follow. These measures are intended to be applied throughout the Matrix forests. Their intent should be met in Adaptive Management Areas, but standards and guidelines are not prescribed for those areas.

1. Retain at least 15 percent of the area associated with each cutting unit (stand). Only Matrix lands count towards the 15 percent. This limitation does not apply to intermediate harvests (thinning) in even age young stands because leaving untreated portions of young stands will retard stand development and be detrimental to the objective of creating late-successional patches.
2. As a general guide, 70 percent of the total area to be retained should be aggregates of moderate to larger size (0.2 to 1 hectare or more) with the remainder as dispersed structures (individual trees, and possibly including smaller clumps less than 0.2 ha.). Larger aggregates may be particularly important where adjacent areas have little late-successional habitat. To the extent possible, patches and dispersed retention should include the largest, oldest live trees, decadent or leaning trees, and hard snags occurring in the unit. Patches should be retained indefinitely.

3. As a minimum, snags are to be retained within the harvest unit at levels sufficient to support species of cavity-nesting birds at 40 percent of potential population levels based on published guidelines and models or an average of 1.5 snags per acre greater than 15 inches in diameter and 20 feet in height. The objective is to meet the 40 percent minimum standard throughout the Matrix, with per-acre requirements met on average areas no larger than 40 acres. To the extent possible, snag management within harvest units should occur within the areas of green-tree retention. The needs of bats should also be considered in these standards and guidelines as those needs become better known. Snag recruitment trees left to meet an identified, near-term (less than 3 decades) snag deficit do not count toward green-tree retention requirements.

Provide additional protection for caves, mines, and abandoned wooden bridges and buildings that are used as roost sites for bats.

Most bat species occurring in the Pacific Northwest roost and hibernate in crevices in protected sites. Suitable roost sites and hibernacula, however, fall within a narrow range of temperature and moisture conditions. Sites commonly used by bats include caves, mines, snags and decadent trees, wooden bridges, and old buildings. Additional provisions for the retention of large snags and decadent trees are included in the standard and guideline for green tree patches in the Matrix. Caves, mines, and abandoned wooden bridges and buildings, however, are extremely important roost and hibernation sites, and require additional protection to ensure that their value as habitat is maintained.

This provision is intended to apply in Matrix forests and Adaptive Management Areas, and elements such as protection of known occupied caves should be considered for other land allocations. Conduct surveys of crevices in caves, mines, and abandoned wooden bridges and buildings for the presence of roosting bats, including fringed myotis, silver-haired bats, long-eared myotis, long-legged myotis, and pallid bats. For the purposes of this standard and guideline, caves are defined as in the Federal Cave Resources Protection Act of 1988 as "any naturally occurring void, cavity, recess, or system of interconnected passages which occur beneath the surface of the earth or within a cliff or ledge (. . . but not including any . . . man-made excavation) and which is large enough to permit an individual to enter, whether or not the entrance is naturally formed or man-made." Searches should be conducted during the day in the summer (to locate day roosts and maternity colonies), at night during the late summer and fall (to locate night roosts, which are important for reproduction), and during the day in the winter (to locate hibernacula). If bats are found, identify the species using the site and determine for what purpose it is being used by bats. As an interim measure, timber harvest is prohibited within 250 feet of sites containing bats. Management standards and guidelines that may be included as mitigation measures in project or activity plans will be developed for the site. These standards will be developed following an inventory and mapping of resources. The purpose of the standards and guidelines will be protection of the site from destruction, vandalism, disturbance from road construction or blasting, or any other activity that could change cave or mine temperatures or drainage patterns. The size of the buffer, and types of activities allowed within the buffer, may be modified through the standards developed for the specific site. Retention of abandoned bridges or buildings must be made contingent on safety concerns.

Modify site treatment practices, particularly the use of fire and pesticides, and modify harvest methods to minimize soil and litter disturbance.

Many species of soil and litter-dwelling organisms, such as fungi and arthropods, are sensitive to soil and litter disturbance. Site treatments should be prescribed which will minimize intensive burning, unless appropriate for certain specific habitats, communities or stand conditions. Prescribed fires should be planned to minimize the consumption of litter and coarse woody debris. Other aspects to this standard and guideline include minimizing soil and litter disturbance that may occur as a result of yarding and operation of heavy equipment, and reducing the intensity and frequency of site treatments. Soil compaction, and removal or disturbance of humus layers and coarse woody debris, may impact populations of fungi and arthropods. These provisions are intended to apply throughout the Matrix forests and within the Adaptive Management Areas.

Provide for retention of old-growth fragments in watersheds where little remains.

The distribution of old-growth stands throughout the landscape is an important component of ecosystem diversity, and plays a significant role in providing for biological and structural diversity across the landscape. Isolated remnant old-growth patches are ecologically significant in functioning as refugia for a host of old-growth associated species, particularly those with limited dispersal capabilities that are not able to migrate across large landscapes of younger stands. These include, but are not limited to, many species of fungi, lichens, bryophytes, arthropods, and vascular plants, and will likely include vertebrate species such as small mammals and amphibians, and various bird species.

Isolated patches will function as refugia where old-growth associated species are able to persist until conditions become suitable for their dispersal into adjacent stands. Loss of these old-growth stands may result in local extirpation of an array of species. It is prudent to retain what little remains of this age class within landscape areas where it is currently very limited. This will ensure future options for management and enhancement of the diversity within adjacent developing stands.

Landscape areas where little late-successional forest persists should be managed to retain late-successional patches. This standard and guideline will be applied in fifth field watersheds (20 to 200 square miles) in which federal forest lands are currently comprised of 15 percent or less late-successional forest. This assessment should include all allocations in the watershed. Within such an area, all remaining late-successional stands should be protected. Protection of these stands could be modified in the future, when other portions of the watershed have recovered to the point where they could replace the ecological roles of these stands.

In Adaptive Management Areas, less than 15 percent of federal forest land in fifth field watershed in late-successional forest should be considered as a threshold for analysis rather than a strict standard and guideline. A proposal to modify such stands should only be implemented following an analysis that considers the ecological function of the remaining late-successional forest and its location in the landscape.

Known Northern Spotted Owl Activity Centers

Standards and Guidelines in the Late-Successional Reserve portion of these Standards and Guidelines specify the protection of 100-acres of owl habitat around all known owl activity centers within the range of the northern spotted owl. Management of stands in the Matrix surrounding these areas will be designed to reduce risks of natural disturbance.

Protection Buffers

These standards and guidelines incorporated from the Scientific Analysis Team Report will result in protection for specific species and should be implemented in Matrix lands within the range of the northern spotted owl. The following rare and locally endemic species are likely to be assured viability if they occur within designated areas. However, where these species occur in the Matrix, the following standards and guidelines will be applied. For the birds listed below, activities that are implemented in 1994 should use this information to the greatest degree possible. Activities implemented in 1995 and later must include these provisions. For the Lynx, implementation should follow the schedule described for survey and manage component 2.

Birds:

White-headed Woodpecker, Black-backed Woodpecker, Pygmy Nuthatch, and Flammulated Owl - These species will not be sufficiently aided by application of mitigation measures for riparian habitat protection or for marbled murrelets alone. They all occur on the periphery of the range of the northern spotted owl on the east slope of the Cascade Range in Washington or Oregon. Additionally, the white-headed woodpecker and flammulated owl occur in the Klamath Province in northwestern California and southwestern Oregon. The viability of all four species within the range of the northern spotted owl was rated as a medium risk on National Forests, although they each are much more widely distributed elsewhere.

Apply the following mitigation standards and guidelines to ensure that the distribution and numbers of all four species do not severely decline on National Forests and BLM Districts within the range of the northern spotted owl. These guidelines apply to the forest Matrix outside designated habitat for the northern spotted owl and Riparian Reserves. Maintain adequate numbers of large snags and green-tree replacements for future snags within the four species' ranges in appropriate forest types. Where feasible, green-tree replacements for future snags can be left in groups to reduce blowdown. Specifically, the Scientific Analysis Team recommends that no snags over 20 inches dbh be marked for cutting. The Scientific Analysis Team recognizes, however, that safety considerations may prevent always retaining all snags. Use of standardized definitions of hazard trees is required. For the longer term, provide for sufficient numbers of green trees to provide for the full (100 percent) population potential of each species.

As depicted by Neitro in Management of Wildlife and Fish Habitats in Forest of Western Oregon and Washington (1985), the 100 percent population potential for white-headed woodpeckers is 0.60 conifer snags (ponderosa pine or Douglas-fir) per acre in forest habitats; these snags must be at least 15 inches dbh (or largest available if 15 inch dbh snags are not available) and in soft decay stages, and must be provided in stands of ponderosa pine and mixed pine/Douglas-fir. The 100 percent population potential for black-backed woodpeckers is 0.12 conifer snags per acre in forest habitats; these snags must be at least 17 inches dbh (or largest available if 17 inch dbh snags are not available) and in hard decay stages, and must be provided in stands of mixed conifer and lodgepole pine in higher elevations of the Cascade Range. Provision of snags for other cavity-nesting species, including primary cavity-nesters, must be added to the requirements for these two woodpecker species. Site-specific analysis, and application of

a snag recruitment model (specifically, the Forest Service's Snag Recruitment Simulator) taking into account tree species, diameters, falling rates, and decay rates, will be required to determine appropriate tree and snag species mixes and densities. If snag requirements cannot be met, then harvest must not take place.

As identified by the expert panel, black-backed woodpeckers also require beetle infested trees for foraging; some such trees should be provided in appropriate habitat, and sanitation harvest of all such trees will be detrimental to the species. More information is needed on habitat use, seasonal occurrence, and use of forest age classes and burns, for the black-backed woodpecker.

Pygmy nuthatches use habitat very similar to those of white-headed woodpeckers. Pygmy nuthatches require large trees, typically ponderosa pine within the range of the northern spotted owl, for roosting. Provision of snags for white-headed woodpeckers is assumed to provide for the needs of pygmy nuthatch, as no species-specific guidelines for the species have been developed. Additional information on ecology of pygmy nuthatch within the range of the northern spotted owl is needed to develop more precise standards and guidelines.

Flammulated owls are secondary cavity-nesters and use cavities, in snags and live trees, created by woodpeckers or, less often, that occur naturally. It is assumed that standards and guidelines for snags and green-tree replacements for woodpeckers and other primary cavity-nesting species, as provided by existing National Forest and BLM District Land and Resource Management Plans and for the woodpeckers in this species group, will provide for flammulated owls.

Fire and Fuels Management

For areas in the Matrix that are located in the rural interface, fire management activities should be coordinated with local governments, agencies, and landowners during watershed analysis to identify additional factors which may affect hazard reduction goals. Hazard reduction may become more important in the rural interface and areas adjacent to structures, dwellings or other amenities. Fire suppression actions in the Matrix will have no additional standards and guidelines.

Management Prescriptions Developed Through the Forest Planning Process

III. ROADED RECREATION

A. Objective

The purpose of this prescription is to provide for an area where there are moderate evidences of the sights and sounds of humans. Modifications are evident and may appear moderate to observers in the area but will be unnoticed or visually subordinate from sensitive travel routes. This prescription emphasizes recreational opportunities associated with developed road systems and dispersed and developed camp sites. Fish and wildlife management, which supports the recreational use of wildlife species (hunting, fishing, and viewing), is also emphasized. The emphasis of vegetation management activities will be to meet recreation, visual, and wildlife objectives while maintaining healthy and vigorous ecosystems.

B. Management Practices

Emphasized:

Fuels Reduction and Management

Road Construction and Reconstruction

Roaded Natural Recreation

Soils and Water Improvement

Streamside and Wetlands Management

Trail Construction and Reconstruction

Vegetation Treatment by Burning

Wildlife Habitat Management - Consumptive Species

Wildlife Habitat Management - Non-Consumptive Species

Permitted:

Heritage Resource Management - Archaeological and Historical Sites

Heritage Resource Management - Native American Sacred Places

Fire Management

Habitat Management - Sensitive and Endemic Plants

Integrated Pest Management

Livestock Grazing

Minerals Development

Timber - Modified Management (Partial Retention, Modification VQOs)

Timber - Minimal Management (Retention VQOs)

Timber - Uneven-Aged Management

Wildlife Habitat Management - Sensitive Animals

C. Description of Areas Where Prescription III Will be Applied

Resource activities and modifications are evident, but they are in harmony with the natural environment setting. A moderate to high frequency of user contact occurs on roads and a low to moderate frequency occurs on trails and away from roads. On-site user controls are noticeable, but they harmonize with the natural environment. Typical activities include: hiking, cross-country skiing, downhill skiing, power boating, snowmobiling, touring, resort-supported recreation, trailer camping, hunting, fishing, and wildlife viewing.

This prescription also applies to designated Recreation segments of Wild and Scenic Rivers. Areas adjacent to these rivers or sections of rivers that are readily accessible by road or railroad, and may have undergone some development in the past, are also included. This is also the primary prescription for the Shasta and Trinity Units of the Whiskeytown-Shasta-Trinity National Recreation Area (NRA).

D. Standards and Guidelines

1. Roads and trails should be located, designed, constructed and maintained so that they are compatible with Roaded Natural Recreation Opportunity Spectrum (ROS) activities. These activities include hiking, auto touring, wildlife viewing, OHV use, cross-country skiing, snowmobiling, and horseback riding.
2. Wildfire suppression tactics will favor use of low impact techniques.
3. Pre-attack facilities should be located where there is minimum conflict with recreation activities.
4. Treatment of fuels created by project activities will be determined during ecosystem planning.
5. Provide information and interpretive services to direct visitors to their recreation destinations. Acquaint the visiting public with the significant historical and cultural features, plants, wildlife, and management programs on the Forests.
6. Locate cross-country skiing developments where terrain and snow conditions are highly suitable.
7. Designate suitable trails and areas for OHV use. Such use should be located and scheduled to minimize conflicts with other recreation use and deer winter range. Refer to the OHV Management Plan map for specific use areas.
8. Plan, design, and implement management activities that are compatible with Roaded Natural ROS guidelines.
9. Identify and develop interpretive publications and exhibits which explain recreation features, management practices and benefits. Special emphasis should be on nationally significant recreation rivers and areas. Coordinate the placement of interpretive services with developed site planning, construction, rehabilitation, or major site maintenance.
10. Timber management activities will be designed to meet recreation, visual, and ecosystem management objectives.
11. Timber yields will result from activities required to attain the desired future condition of the landscape.
12. Disperse openings created by timber harvesting throughout project areas. Size of openings will average 5 acres or less.
13. Manage to meet adopted Visual Quality Objectives (VQOs) of retention, partial retention, or modification as indicated on the adopted VQO map. Unseen areas within any mapped VQO may be managed for modification except in recreation river corridors.
14. Management activities that are seen from developed recreation sites will meet a VQO of retention in the foreground and partial retention in the middleground.
15. Manage hardwoods for sustainability on a landscape basis consistent desired future ecosystem conditions.
16. Maintain an average of 10 tons of unburned dead/down material per acre on slopes less than 40 percent. Preference is to have a por-

tion of this tonnage in large material (i.e., 4 to 6 logs over 10 feet long at the largest diameter available). Where feasible, maintain the same amount on slopes over 40 percent.

VI. WILDLIFE HABITAT MANAGEMENT

A. Objective

The primary purpose of this prescription is to maintain and enhance big game, small game, upland game bird and non-game habitat, thereby providing adequate hunting and viewing opportunities. Habitat management for species which are primarily dependent upon early and mid-seral stages is an important consideration. While this prescription does not emphasize those wildlife species dependent on late seral stages, habitat favorable to these species will occur within this prescription. Vegetation is manipulated to meet wildlife habitat management objectives and to maintain healthy, vigorous stands using such tools as silviculture and prescribed fire. Cutting unit sizes and locations, timing of stand entries, and intensity of site preparation, release, and thinning are modified to provide desirable habitat conditions through time. Roaded natural recreation opportunities will be maintained. Riparian habitat is managed under Prescription IX for riparian dependent fish and wildlife species.

B. Management Practices

Emphasized:

Hardwood Habitat Management

Soils and Water Improvement

Streamside and Wetlands Management

Vegetation Treatment by Burning

Wildlife Habitat Management - Consumptive Species

Wildlife Habitat Management - Non-Consumptive Species

Permitted:

Heritage Resource Management - Archaeological and Historical Sites

Fuels Reduction and Management

Habitat Management - Sensitive and Endemic Plants

Integrated Pest Management

Livestock Grazing

Minerals Development

Road Construction and Reconstruction

Roaded Natural Recreation

Timber - Minimal Management

Timber - Modified Management

Timber - Uneven-Aged Management

Trail Construction and Reconstruction

Wildlife Habitat Management - Sensitive Animals

C. Description of Areas Where Prescription VI Will Be Applied

This prescription may include wildlife areas for black bear, deer, and gray squirrel. Black bear and deer will generally receive a higher level of emphasis in this prescription than in other areas of the Forests. Also included are major wildlife forage/browse areas (e.g., bitterbrush ranges).

D. Standards and Guidelines

1. Treatment of fuels created by project activities will be determined during ecosystem planning.
2. Off-highway vehicle (OHV) use may occur only in designated areas and on trails. Use will be located and scheduled to minimize conflicts with wildlife objectives. Refer to the OHV Management Plan map for specific use areas.
3. Management activities should be compatible with Roaded Natural Recreation Opportunity Spectrum (ROS) guidelines.
4. Develop exhibits, publications, and signs that interpret wildlife practices and benefits.
5. A combination of even-age and uneven-aged timber management practices will be used to achieve desired wildlife goals and objectives and to maintain healthy, vigorous stands.
6. Timber management activities will be designed to meet recreation, visual, and ecosystem management objectives.
7. Manage to meet adopted Visual Quality Objectives (VQOs) of retention, partial retention, and modification as indicated on the adopted VQO map.
8. Manage hardwoods for sustainability on a landscape basis consistent desired future ecosystem conditions.
9. Use this Prescription to help provide additional habitat for fisher, marten, and goshawk.

VIII. COMMERCIAL WOOD PRODUCTS EMPHASIS

A. Objective

The purpose of this prescription is to obtain an optimum timber yield of wood fiber products from productive forest lands within the context of ecosystem management. Investments will be made in road construction, fuels management, reforestation, vegetation management, and timber stand improvement. Timber stands will be managed to obtain optimum growth and yields using cultural practices which control competing vegetation (release and weeding), obtain stocking control (thinning), and minimize mortality (pest management) within the context of the Matrix Standards and Guidelines described above. Rotation lengths will normally range from 70 to 140 years and averaging about 110 years, depending on site and species. Vegetative manipulation will provide habitat for those wildlife species primarily dependent on early and mid-seral stages.

B. Management Practices

Emphasized:

Fuels Reduction and Management

Integrated Pest Management

Road Construction and Reconstruction

Soils and Water Improvement

Timber - Intensive Management

Permitted:

Heritage Resource Management - Archaeological and Historical Sites

Habitat Management - Sensitive and Endemic Plants

Hardwood Habitat Management

Livestock Grazing

Minerals Development

Roaded Natural Recreation

Streamside and Wetlands Management

Timber - Modified Management

Timber - Uneven-Aged Management

Trail Construction and Reconstruction

Vegetation Treatment by Burning

Wildlife Habitat Management - Consumptive Species

Wildlife Habitat Management - Non-Consumptive Species

Wildlife Habitat Management - Sensitive Animals

C. Description of Areas Where Prescription VIII Will Be Applied

This prescription applies to productive forest lands which, through field examination, are classified as suitable for timber production. These lands are to be managed with the sustainability of all ecosystems in mind. Therefore, an optimum yield of wood fiber production will not be expected.

D. Standards and Guidelines

1. Transportation system planning will consider total needs of a compartment or large area.
2. Treatment of fuels created by project activities will be determined during ecosystem planning.
3. Recreation Opportunity Spectrum (ROS) experiences will be compatible with timber objectives. In most cases this will be the Roaded Natural Recreation ROS class.
4. Develop exhibits and publications which explain timber management practices and benefits and which are identified in interpretive plans.
5. Manage to meet the adopted Visual Quality Objectives (VQOs) of partial retention, modification, and maximum modification as shown on the adopted VQO map.
6. Manage hardwoods for sustainability on a landscape basis consistent with desired future ecosystem conditions.
7. Maintain an average of 5 tons of unburned dead/down material per acre on slopes less than 40 percent. Preference is to have a portion of this tonnage in large material (i.e., 4 to 6 logs over 10 feet long at the largest available diameter). Where feasible, maintain the same amount on slopes greater than 40 percent.

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Standards and Guidelines from the ROD

Hierarchy of Standards and Guidelines Within Adaptive Management Areas

Overall, management activities in all the Adaptive Management Areas will be conducted to achieve the objectives described in these standards and guidelines. Flexibility is provided to meet objectives for Riparian Reserves and Key Watersheds. Full watershed analysis will be conducted prior to new management activities in identified Key Watersheds within Adaptive Management Areas. Standards and guidelines for the entire forest, for management prescriptions, for management areas and for the Matrix need to be considered during planning and implementation of activities within Adaptive Management Areas, and they may be modified in Adaptive Management Area plans which would amend this forest plan based on site-specific analysis. It is expected that Standards and Guidelines will be developed to meet the objectives of the Adaptive Management Area which could cause the revision of other S&G's for the forest.

Objective

The overall objective for Adaptive Management Areas is to learn how to manage on an ecosystem basis in terms of both technical and social challenges, and in a manner consistent with applicable laws. The Adaptive Management Areas are intended to contribute substantially to the achievement of objectives for these standards and guidelines as they apply to other allocations. This includes provision of well-distributed late-successional habitat outside of reserves, retention of key structural elements of late-successional forests on lands subjected to regeneration harvest, and restoration and protection of riparian zones as well as provision of a stable timber supply.

Technical Objectives - The Adaptive Management Areas have scientific and technical innovation and experimentation as objectives. The guiding principle is to allow freedom in forest management approaches to encourage innovation in achieving the goals of these standards and guidelines. This challenge includes active involvement by the land management and regulatory agencies early in the planning process.

The primary technical objectives of the Adaptive Management Areas are development, demonstration, implementation, and evaluation of monitoring programs and innovative management practices that integrate ecological and economic values.

Technical topics requiring demonstration or investigation are a priority for Adaptive Management Areas and cover a wide spectrum, from the welfare of organisms to ecosystems to landscapes. Included are development, demonstration, and testing of techniques for:

- Creation and maintenance of a variety of forest structural conditions including late-successional forest conditions and desired riparian habitat conditions.
- Integration of timber production with maintenance or restoration of fisheries habitat and water quality.
- Restoration of structural complexity and biological diversity in forests and streams that have been degraded by past management activities and natural events.
- Integration of the habitat needs of wildlife (particularly of sensitive and threatened species) with timber management.
- Development of logging and transportation systems with low impact on soil stability and water quality.
- Design and testing of effects of forest management activities at the landscape level.
- Restoration and maintenance of forest health using controlled fire and silvicultural approaches.

Legal - All activities must comply with existing laws such as Endangered Species Act, National Environmental Policy Act, National Forest Management Act, Forest Land Policy and Management Act, Federal Advisory Committee Act, National Historic Preservation Act, Clean Water Act, Clean Air Act, and treaty rights. Management and regulatory agencies should work together to determine ways to expedite management while ensuring compliance, to improve cooperation through planning and on-the-ground consultation, and to avoid confrontation.

Standards and Guidelines

Unmapped Late-Successional Reserves within Adaptive Management Areas will be managed according to the standards and guidelines for such reserves except as provided elsewhere in this section. Management of these areas will comply with the Standards and Guidelines for Late-Successional Reserves, and management around these areas will be designed to reduce risk of natural disturbances.

Riparian protection in Adaptive Management Areas should be comparable to that prescribed for other fed-

eral land areas. For example, Key Watersheds with aquatic conservation emphasis within Adaptive Management Areas must have a full watershed analysis and initial Riparian Reserves comparable to those for Tier 1 Key Watersheds. Riparian objectives (in terms of ecological functions) in other portions of Adaptive Management Areas should have expectations comparable to Tier 2 Key Watersheds where applicable. However, flexibility is provided to achieve these conditions, if desired, in a manner different from that prescribed for other areas and to conduct bonafide research projects within riparian zones.

At the same time, any analysis of Riparian Reserve widths must also consider the contribution of these reserves to other, including terrestrial, species. Watershed analysis should take into account all species that were intended to be benefited by the prescribed Riparian Reserve widths. Those species include fish, mollusks, amphibians, lichens, fungi, bryophytes, vascular plants, American marten, red tree voles, bats, marbled murrelets, and northern spotted owls. The specific issue for spotted owls is retention of adequate habitat conditions for dispersal.

Standards and Guidelines for Matrix management provide specific measures for coarse woody debris, and for green tree and snag retention, for the Matrix. The intent of the measures must also be met in Adaptive Management Areas, but specific standards and guidelines are not prescribed for these areas. It expected that all management will comply with the Matrix S&G's until AMA Plans are completed for all or part of the AMA which will amend the S&G's in this plan. If activities are in compliance with the Matrix standards and they do not impact another more restrictive allocation, they may proceed prior to the completion of an AMA Plan as long as they satisfy all legal requirements.

Provide additional protection for caves, mines, and abandoned wooden bridges and buildings that are used as roost sites for bats.

Most bat species occurring in the Pacific Northwest roost and hibernate in crevices in protected sites. Suitable roost sites and hibernacula, however, fall within a narrow range of temperature and moisture conditions. Sites commonly used by bats include caves, mines, snags and decadent trees, wooden bridges, and old buildings. Additional provisions for the retention of large snags and decadent trees are included in the standard and guideline for green tree patches in the Matrix. Caves, mines, and abandoned wooden bridges and buildings, however, are extremely important roost and hibernation sites, and require additional protection to ensure that their value as habitat is maintained. This provision is intended to apply in Matrix forests and Adaptive Management Areas, and elements such as protection of known occupied caves should be considered for other land allocations within the range of the northern spotted owl. Conduct surveys of crevices in caves, mines, and abandoned wooden bridges and buildings for the presence of roosting bats, including fringed myotis, silver-haired bats, long-eared myotis, long-legged myotis, and pallid bats. For the purposes of this standard and guideline, caves are defined as in the Federal Cave Resources Protection Act of 1988 as "any naturally occurring void, cavity, recess, or system of interconnected passages which occur beneath the surface of the earth or within a cliff or ledge (. . . but not including any . . . man-made excavation) and which is large enough to permit an individual to enter, whether or not the entrance is naturally formed or man-made." Searches should be conducted during the day in the summer (to locate day roosts and maternity colonies), at night during the late summer and fall (to locate night roosts, which are important for reproduction), and during the day in the winter (to locate hibernacula). If bats are found, identify the species using the site and determine for what purpose it is being used by bats. As an interim measure, timber harvest is prohibited within 250 feet of sites containing bats. Management standards and guidelines that may be included as mitigation measures in project or activity plans will be developed for the site. These standards will be developed following an inventory and mapping of resources. The purpose of the standards and guidelines will be protection of the site from destruction, vandalism, disturbance from road construction or blasting, or any other activity that could change cave or mine temperatures or drainage patterns. The size of the buffer, and types of activities allowed within the buffer, may be modified through the standards developed for the specific site. Retention of abandoned bridges or buildings must be made contingent on safety concerns.

Modify site treatment practices, particularly the use of fire and pesticides, and modify harvest methods to minimize soil and litter disturbance.

Many species of soil and litter-dwelling organisms, such as fungi and arthropods, are sensitive to soil and litter disturbance. Site treatments should be prescribed which will minimize intensive burning, unless appropriate for certain specific habitats, communities or stand conditions. Prescribed fires should be planned to minimize the consumption of litter and coarse woody debris. Other aspects to this standard and guideline include minimizing soil and litter disturbance that may occur as a result of yarding and operation of heavy equipment, and reducing the intensity and frequency of site treat-

ments. Soil compaction, and removal or disturbance of humus layers and coarse woody debris, may impact populations of fungi and arthropods. These provisions are intended to apply throughout the Matrix forests and within the Adaptive Management Areas.

Provide for old-growth fragments in watersheds where little remains.

Matrix Standards and Guidelines specify retention of old-growth fragments in fifth field watersheds containing less than 15 percent of such stands. In Adaptive Management Areas, less than 15 percent of fifth field watershed in late-successional forest should be considered as a threshold for analysis rather than a strict standard and guideline, and the role of remaining stands of late-successional forests must be fully considered in watershed analysis before they can be modified.

Management Prescriptions Developed Through the Forest Planning Process

Until the AMA section of this Forest Plan is amended by AMA Plans, watershed plans, or project plans, which result in new standards and guidelines (S&Gs) and/or allocations, management prescriptions and S&Gs for Matrix, Riparian Reserves, Administratively Withdrawn Areas, and LSRs will be adhered to within the AMA.

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MANAGEMENT AREA DIRECTION (Level 4)

G

A Management Area is a contiguous unit of land of manageable proportions. The boundaries follow definite topographical lines where possible.

The Shasta-Trinity National Forests are divided into 22 Management Areas with separate, distinct management direction in response to localized issues and resource opportunities. Management Area direction applies only to National Forest land, not private land.

The following information is included for each of the 22 Management Areas on the Shasta-Trinity National Forests:

Description - Describes the location, size, prominent features, terrain, watersheds, soil types, vegetation, wildlife, fire history, cultural resources, recreation, timber production, mining, and other uses.

Management Prescriptions - Acres allocated to each management prescription are listed. Except for those management areas which are dedicated to single purposes, such as Research Natural Areas (RNAs) or Wildernesses, management areas consist of two or more management prescriptions.

Desired Future Condition - A statement of the desired future condition (DFC) is included for each Management Area. A DFC is a description of future resource, social, economic, and/or cultural elements. Implementation of this Plan will help direct management activities toward attaining these DFCs.

Supplemental Management Direction - These identify additional direction (similar to standards and guidelines) unique to each management area. For example, the riparian area along the McCloud River is different from the riparian area along the South Fork of the Trinity River. The McCloud has opportunities for management of a wild trout fishery, and the South Fork is managed primarily for anadromous fisheries.

The Forest-wide Standards and Guidelines (Section E of this chapter) are also part of the direction for each of the Management Areas described on the following pages.

NOTE: The acreage on the Management Area tables may not add up due to independent rounding.

MANAGEMENT AREA DESCRIPTIONS

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1 - Porcupine Butte

County: Siskiyou
Ranger District: McCloud
Elevation: 3,900 - 7,300 feet
National Forest Land: 88,156 acres

Description

A

Location:

The Porcupine Butte Management Area (MA) lies in the northeastern edge of the Shasta National Forest and borders the Modoc National Forest. This MA overlies a portion of the Medicine Lake Volcano, classified by geologists as 'active'.

Physical Environment:

This MA was shaped by cinder cones and successive lava flows that originated from the base of the Medicine Lake Volcano. On much of the MA these flows have created moderately productive soils. The very recent giant crater lava flow, which covers much of the MA, exhibits a relatively barren landscape typified by lava fields, ice caves, craters, and lava tubes. An equal proportion of the MA is typified by frequent lava outcrops with small pockets of moderately productive soils. Average annual rainfall for this MA is 20 to 30 inches. There is little surface water and there is a limited drainage pattern. This MA includes a portion of the Glass Mountain Known Geothermal Resource Area.

Biological Environment:

The predominant existing vegetation types in this MA are ponderosa pine/bitterbrush associations at lower elevations and white fir forests at higher elevations. Western juniper, incense cedar and knobcone pine stands are very common on recent lava flows. Mixed conifer stands in this MA include sugar pine, particularly on cinder cones where they commonly dominate the stand. Greenleaf manzanita, snowbrush, and bittercherry are common shrub species.

This MA supports an extensive summer range for deer and habitat for furbearers.

Sensitive Plants:

The Forests' only population of *talus collomia* , a sensitive plant, occurs in this MA on Little Mt. Hoffman. Refer to Appendix P for additional information.

Management of the Area:

Vegetation Management - Timber management activities have been concentrated on the areas with productive soils. Deer hunting has been the largest single recreational pursuit. Two major power transmission corridors cross the MA. Fuel modification, to reduce wildfire damage, is evident. The prehistoric archaeological sites represent early obsidian gathering and hunting practices as well as early Native American mobility and travel. The historic sites represent the McCloud River Lumber Company logging and railroad operations.

Special Areas - Unique volcanic features, such as the Giant Crater Lava Tube System, Deep Crater, Little Glass Mountain, Pumice Stone Mountain, Paint Pot Crater, and Spatter Cones, are proposed for classification as geologic Special Interest Areas (SIAs).

Fire and Fuels - Large (40-100 acre) wildfires are continuing a historic pattern, that of adversely affecting portions of the MA that have not had their structure altered to replicate the historical natural role of fire. The best opportunity to reduce wildfire damage occurs on lands where fuels have been modified. Thinning, prescribed burning and natural fire management is used to treat fuels and enhance wildlife habitat.

Public Use - Social activities consist primarily of hunting, firewood gathering, non-consumptive wildlife viewing, and visits to interpretive sites. Vehicular access has been reduced and few new roads have been built. Visitors traveling the scenic byway are attracted to interpretive services at the geologic SIAs, lava tubes, caves, heritage awareness sites, and mature ponderosa pines.

Heritage Resources - The archaeological sites are protected through stabilization, fencing, and limiting public use. Because the prehistoric sites in the Medicine Lake Highlands are important to broader research goals in Northern California concerning the use of Medicine Lake Highlands obsidian, special emphasis is placed on long term thematic study of these sites.

Lands - Two large powerline corridors bisect the eastern portion of the MA, but they cannot be seen from major visitor routes. Geothermal power potential is recognized although development has not yet taken place.

Management Prescriptions

B

Table 4-5 depicts the acres of each management prescription within the management area. The boundaries are depicted on the PRF map.

Table 4-5
Management Prescriptions for Management Area I

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	3,168
	Total	**3,168**
Administratively Withdrawn Areas		
X	Special Area Management	5,470
XI	Heritage Resource Management	195
	Total	**5,665**
Riparian Reserves		
IX	Riparian Management	2,386
	Total	**2,386**
Matrix		
III	Roaded Recreation	4,545
VI	Wildlife Habitat Management	32,563
VIII	Commercial Wood Products Emphasis	39,829
	Total	**76,937**
	Grand Total	**88,156**

Desired Future Condition

C

Eighty seven percent of the 88,156 acres in this management area are allocated to Matrix, six percent to Administratively Withdrawn Areas, and seven percent to Late-Successional Reserve and Riparian Reserve (Actual acres in Riparian Reserve will be determined at the watershed/project level according to the criteria identified under the Riparian Reserve Prescription).

Suitable Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wildfire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable Matrix lands as a by product of ecosystem management is expected to provide approximately 159 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 6%; Management Prescription VI, Wildlife Habitat Management about 42%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 52%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early

seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix.

Late-Successional Reserves are located in the Harris Mountain and Saddle Hills areas of the this management area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

D

1. Pending development of a conservation strategy, protect the *collomia* population from road maintenance operations and foot traffic.
2. Protect Grasshopper Flat as a cultural resource. Determine whether other areas along the obsidian flow south of Grasshopper Flat are prehistoric quarries. Define how these cultural resources will be managed. This will be done in consultation with the State Office of Historic Preservation.
3. Interpret archaeological sites in areas where visitors are already directed such as along the scenic byway and/or geologic special interest areas (SIAs).
4. Conduct a long term thematic study of the prehistoric archaeological sites in the Medicine Lake Highlands. Establish partnerships with Shasta College, California State University Chico, and/or other institutions.
5. Manage for bitterbrush in selected areas mapped as Prescription VI (Wildlife Management) within this MA. Areas with less than 30 percent conifer crown closure and with significant amounts of bitterbrush (greater than 500 plants/acre) will be managed primarily for bitterbrush production.

   Areas with more than 60 percent conifer crown closure and without significant amounts of bitterbrush (less than 500 plants/acre) will be managed primarily for timber production.

   Areas with 30-60 percent conifer crown closure and with significant amounts of bitterbrush (500 or more plants/acre) will have management activities designed to achieve optimal use of both the bitterbrush and timber resources. This will usually result in an irregular pattern and/or mosaic of patches, clumps and/or stringers of bitterbrush interwoven with timber stands, or vice versa. Specific areas will be designated for management of one of the two types, but not both, on the same area. The minimum sized stand to be managed for, in timber, is about one acre and, in bitterbrush, about one/tenth acre.
6. Allow fire to play its natural role in this MA through natural ignitions. Allow for prescribed natural fire where values at risk indicate confine suppression strategies and consumption of biomass meets future resource protection needs.
7. Maintain the existing and planned fuelbreak system to a level which will result in wildfires generally not exceeding 40 acres in size. Maintain fuel management investments and suppression resources capable of eliminating a single outage on the powerline system. Maintain a staffing capability that provides a 15 minute initial attack response for fires.
8. Plan for geothermal and common minerals development in coordination with the area's significant geologic and visual resource values.
9. Maintain Tilted Rock Lava Flow, Burnt Lava Flow, and Papoose Hill in their current conditions until they can be evaluated for suitability as SIAs.
10. Manage caves and lava tubes for increased visitor interpretation, sensitive habitat protection, and public safety. Monitor this use to determine if any environmental changes are occurring to the subsurface resource.

11. Manage for Old-Growth pine stands along the Modoc Scenic Byway route because they are an important component of the highly scenic road to Medicine Lake.

12. Locate, develop, and maintain water sources, where necessary, for wildlife, domestic grazing, fire control, and road maintenance purposes.

13. Emphasize seasonal vehicle closures for wildlife management in the East McCloud Road Management Area. Reduce road density and rejuvenate browse species to enhance big game species habitat.

14. Develop forest stands that are resistant to epidemic insect or disease attack through stocking control, manipulation of species composition, and introduction of tree improvement technology. Maintain and enhance a sustainable level of wood fiber production from regulated areas.

15. Consider and evaluate regulation of tentatively suitable land presently allocated to withdrawn or reserved areas.

16. Evaluate opportunities to enhance elk populations and habitat.

17. Emphasize management of hardwoods including aspen as a stand component where they exist.

2 - McCloud Flats

County: Siskiyou
Ranger District: McCloud
Elevation: 3,600 - 7,000 feet
National Forest Land: 130,764 acres

Description

A

Location:

The McCloud Flats Management Area (MA) is bordered on the north by the Klamath National Forest and on the east by the Porcupine Butte MA (MA #1). It is located north and east of the community of McCloud.

Physical Environment:

The geography of this MA is characterized by level to gently sloping basalt flows, alluvial basins, escarpments, cinder cones and volcanic buttes. Soil productivity ranges from low to moderate on the level basalt flows to high on other landforms. Average annual precipitation is 30 to 40 inches. There is little surface water. Where streams exist, they flow into sinks and reappear as springs along the McCloud River.

Biological Environment:

This MA is dominated by white fir mixed conifer forest types. Red fir forests grow at the highest elevations, ponderosa pine/bitterbrush stands grow on recent lava flows, lodgepole pine stands occur in alluvial basins and black oak/Douglas-fir mixed conifer grows on gently sloping lava flows and escarpments. This MA has large openings, such as Dry Lake, Big Sand Flat, and White Deer Lake; there are also many small openings throughout the area.

The entire MA is deer summer range and black bear habitat. Sheephaven Creek, Swamp Creek, and Trout Creek support red band trout populations. There is also habitat for goshawks, spotted owls, and furbearers within the MA.

Sensitive Plants - Two sensitive plants grow in this MA: long-haired star-tulip and Salmon Mountains wake robin. A third rare plant, Columbia cress, grows here as well. Columbia cress is not currently listed as Sensitive as of this writing but it has been proposed for addition to the Regional Forester's Sensitive Species list. Refer to Appendix P for additional information.

Management of the Area:

This MA is highly suitable for timber, range, wildlife, and off-highway use. The area contains some of the most highly productive ponderosa pine stands in Northern California. McCloud Flats has contributed a significant portion of the Shasta Forest's harvest volume. A large portion of the Forest's active range allotments (sheep and cattle) is concentrated in this area. Habitat management for the McCloud Flats deer herd, black bear, redband trout, and spotted owls is an important consideration.

Fire and Fuels - Large (40-100 acre) wildfires are continuing a historic pattern, that of adversely affecting portions of the MA that have not had structure altered to replicate the historical natural role of fire. The best opportunity to reduce wildfire damage occurs on Lands where fuels have been modified. Thinning, prescribed burning and natural fire management is used to treat fuels and enhance wildlife habitat.

Public Use - Social activities consist primarily of hunting, firewood gathering, non-consumptive wildlife viewing, and visits to interpretive sites. Vehicular access has been reduced and few new roads have been built.

Roaded recreation opportunities abound. Several of the main visitor routes, such as Pilgrim Creek Road, Harris Springs Road, and Powder Hill Road, are surfaced. Roadless recreation activities are limited. The primary dispersed recreation pursuits are deer hunting, non-consumptive wildlife viewing, firewood gathering, and day use activities. Snowmobiling and cross-country skiing are popular winter activities.

Heritage Resource - The archaeological sites are protected through stabilization, fencing, and/or limiting public use. Monitoring of sites is emphasized in areas heavily impacted by dispersed recreation activities. Because the McCloud River Lumber Company railroad logging system has been determined eligible to the National Register under local and state significance, special emphasis is placed on a long term thematic study of these sites.

Management Prescriptions

B

Table 4-6 depicts the acres of each management prescription within the management area. The boundaries are depicted on the PRF map.

Table 4-6
Management Prescriptions for Management Area 2

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	21,336
	Total	**21,336**
Administratively Withdrawn Areas		
IV	Roaded, High Density Rec.	177
X	Special Area Management	421
XI	Heritage Resource Management	449
	Total	**1,047**
Riparian Reserves		
IX	Riparian Management	8,721
	Total	**8,721**
Matrix		
III	Roaded Recreation	7,769
VI	Wildlife Habitat Management	17,833
VIII	Commercial Wood Products Emphasis	74,058
	Total	**99,660**
	Grand Total	**130,764**

Desired Future Condition

C

Seventy-six percent of the 130,764 acres in this management area are allocated to Matrix, 23% to Late-Successional Reserve and Riparian Reserve, and 1% to Administratively Withdrawn Areas.

Suitable Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wildfire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable Matrix lands as a by product of ecosystem management is expected to provide approximately 207 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 8%; Management Prescription VI, Wildlife Habitat Management about 18%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 74%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasiize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix

lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix.

Late-Successional Reserves and Managed Late-Successional Areas are located south of McIntosh Well to Colby Meadows and Mushroom Rock, in the vicinity of Sheep Haven Butte, in the area from Little Blackfox Mountain south to Raccoon Creek, in Whiskey Creek in the Algoma area, in the vicinity of Elk Flat, east of the Military Pass Road, in scattered sections from Fons Butte north to Hemlock Ridge, near Rainbow Mountain and Ash Creek Butte, and a very small area along the Pilgrim Creek Road adjacent to the Mud Flow Research Natural Area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

D

1. Survey for additional populations of long-haired star tulip, Salmon Mountains wake robin, and Columbia cress. Pending completion of conservation strategies, identify key habitat for the three plants and manage these areas for maintenance or enhancement of the species.
2. Implement a thematic study of the archaeological sites representing the McCloud River Lumber Company operations. This study will answer research questions posed in the Determination of Eligibility of the McCloud Lumber Company Historic District. Pursue partnerships with Shasta College, California State University Chico, or other institutions.
3. Conduct an evaluation program at archaeological sites in heavily used dispersed recreation areas such as Trout Creek, Toad Well, Bear Springs, and Lost Springs. If sites are eligible for the National Register, carry out protection measures such as fencing and public education.
4. Develop a partnership with the Native American community at Coonrod Flat to emphasize the contemporary Native American use of the area.
5. Evaluate and interpret the Military Pass Road for its cultural significance.
6. Manage the non-timbered portions of Coonrod Flat, Elk Flat, Big Sand Flat, Toad Lake, and Mud Creek Meadow primarily for earlier seral stage vegetation.
7. Manage for bitterbrush in selected areas mapped as Prescription VI (Wildlife Management) within this MA.
   a. Areas with less than 30 percent conifer crown closure and with significant amounts of bitterbrush (greater than 500 plants/acre) will be managed primarily for bitterbrush production.
   b. Areas with more than 60 percent conifer crown closure and without significant amounts of bitterbrush (less than 500 plants/acre) will be managed primarily for timber.
   c. Areas with 30-60 percent conifer crown closure and with significant amounts of bitterbrush (500 or more plants/acre) will have management activities designed to achieve optimal use of bitterbrush and timber resources. This will usually result in an irregular pattern and/or mosaic of patches, clumps and/or stringers of bitterbrush intermingled with timber stands or vice versa. Specific areas will be designated for management of one of the two types, but not both, on the same area. The minimum size stand to be managed for, in timber, is about one acre and, in bitterbrush, about one/tenth acre.

   Management objectives for selected bitterbrush stands, item 7a. above, are as follows:

   a. Provide for an average of 800 bitterbrush plants per acre.
   b. Average conifer canopy closures should not exceed 30-40 percent.
   c. Maintain a mix of age and condition classes.
8. Protect and enhance redband trout habitat in Trout, Sheephaven, Edson, and Swamp Creeks through implementation of riparian management standards, evaluation of watershed characteristics,

and construction of instream habitat structures. This will be done in cooperation with the California Department of Fish and Game (DFG). Pursue acquisition of private lands along these streams.

9. Continue to develop the adopt-a-watershed project with emphasis on Trout Creek. Emphasize partnerships.
10. Pursue acquisition of private land within the Shasta Mud Flow RNA that is needed to fulfill research objectives.
11. Rehabilitate Atkins Meadow as part of a riparian restoration project.
12. Regulate the collection of edible mushrooms to a level compatible with sustaining viable populations.
13. Maintain Big Sand Flat in its current condition pending evaluation of its suitability as a Special Interest Area.
14. Develop forest stands that are resistant to epidemic insect or disease attack through stocking control, manipulation of species composition, and introduction of tree improvement technology. Maintain and enhance a sustainable level of wood fiber production from regulated areas.
15. Consider and evaluate regulation of tentatively suitable land presently allocated to withdrawn or reserved areas.
16. Evaluate the possibility of developing a Mt. Shasta scenic byway.
17. Locate, develop, and maintain water sources, where necessary, for wildlife, domestic grazing, fire control and road maintenance needs.
18. Evaluate opportunities to enhance elk habitat management.
19. Consider expanding the East McCloud Road Management Area to emphasize seasonal vehicular closures for wildlife management. Reduce road density and rejuvenate browse to enhance big game species habitat.
20. Emphasize management of hardwoods including aspen as a stand component where they exist.

3 - Mt. Shasta Management Area

County: Siskiyou
Ranger Districts: McCloud/Mt. Shasta
Elevation: 3,300 to 8,000 feet
National Forest Land: 69,282 acres

Description

A

Location:

The Mt. Shasta Management Area (MA) lies north, east, and west of the communities of Mt. Shasta and McCloud. The MA is bordered by the Klamath National Forest to the north. Majestic Mt. Shasta, part of the Mt. Shasta Wilderness, is encircled by this MA.

Physical Environment:

Dominant features include 6,325 foot Black Butte, a volcanic plug dome, and 5,709 foot Everitt Hill, a shield volcano. Major topographic features are Signal Butte, McKenzie Butte, and Ash Creek which were formed by geologically-recent volcanic activity. The area contains lava flows, glacial melt streams from Mt. Shasta, and several mudflows. This MA lies within the Upper McCloud, Squaw Valley, Shasta River, and Upper Sacramento watersheds.

Biological Environment:

The dominant vegetation includes dense stands of evergreen and deciduous brush, mainly greenleaf manzanita and bitterbrush. High elevations are dominated by pure stands of Shasta red fir. Other tree species include white fir, ponderosa pine, Jeffrey pine, knobcone pine, lodgepole pine, juniper, and mountain mahogany. Mule deer, black-tailed deer, and pronghorn antelope inhabit the area. Portions of this MA contain important deer winter range.

Sensitive Plants:

Three sensitive plants occur in the MA, including two that have very restricted ranges; they only occur here and on adjacent lands. The latter are Cooke's phacelia, endemic to the Military Pass area on the northeast flank of Mt. Shasta, and pallid bird's beak, known from private and Shasta National Forest land in the vicinity of Black Butte. Potential habitat for three more sensitive plants can also be found in this MA. Refer to Appendix P for additional information.

Management of the Area:

The MA contains spring sources and intake and pipeline systems for the water supplies for McCloud and Mt. Shasta. Habitat management for the Miller Mountain and McCloud Flats deer herds and spotted owls is an important consideration. Maintaining diversity is also important. This MA receives year-long recreation use. The Sand Flat, Bunny Flat, and Panther Meadow areas are popular for people visiting Mt. Shasta. The former Mt. Shasta Ski Bowl serves as a take-off point for people climbing Mt. Shasta. Cross-country and downhill skiing are also popular here. The Mt. Shasta Ski Park, located primarily on private land, opened for business during the 1985-86 season. A second ski area, to be located primarily on National Forest land, is being evaluated. Special interest and religious groups, hunters, campers, botanists, and geologists are also attracted to the area.

Public Use and Resource Attractions - Visitors traveling on State Highways 89 and 97 and Interstate 5 can see a variety of vistas which are centered on Mt. Shasta. There are several age classes of trees, and species composition varies from ponderosa pine to pine and fir mixtures. The stands of Shasta red fir in the Sand Flat, Bunny Flat and Red Fir Flat areas are being managed for recreation and their natural qualities. These stands continue to thin themselves, and stands of young red fir are growing in the openings. Sensitive, threatened and endangered species populations are monitored and habitats are improving.

Fire, Fuels and Vegetation Management - The converted brushfields of the 1930's to present, and more recently harvested units, are established and appear as young to mature forest stands. The lands adjacent to the urban areas of Weed, Mt. Shasta and McCloud have been managed to reduce the possibility of wildfires. Reductions in fuel loading and restrictions on visitor use are managed cooperatively with the cities, county, and the California Department of Forestry and Fire Protection (CDF). Firewood and Christmas tree cutting continue to be popular activities in this area.

Heritage Resource - Archaeological and cultural sites are protected through stabilization, fencing, and/or limiting use. Monitoring is conducted at significant sites. Historic Forest Service/Civilian Conservation Corps sites, including the Mt. Shasta Ranger District compound, are the focus of public interpretation. Special emphasis on the management of Panther Meadows as a significant historic site is instituted.

The area was determined to be eligible for historic designation under section 106 of the National Historic Preservation Act. This eligibility means that all activities will be coordinated with Native Americans to determine if they will adversely affect the religious significance of sites within the management area.

Special Areas:

Black Butte is recommended for designation as a geologic special interest area (SIA). The entire MA is recommended for designation as a scenic SIA. A portion of this MA (3,115 acres) was formally classified as the Shasta Mud Flow Research Natural Area (RNA) in 1971.

Management Prescriptions

B

Table 4-7 depicts the acres of each management prescription within the management area. The boundaries are depicted on the PRF map.

Table 4-7
Management Prescriptions for Management Area 3

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	15,019
	Total	**15,019**
Administratively Withdrawn Areas		
I	Unroaded Non-motorized Rec.	718
IV	Roaded, High Density Rec.	143
X	Special Area Management	3,615
XI	Heritage Resource Management	108
	Total	**4,584**
Riparian Reserves		
IX	Riparian Management	5,992
	Total	**5,992**
Matrix		
III	Roaded Recreation	39,701
VI	Wildlife Habitat Management	283
VIII	Commercial Wood Products Emphasis	3,704
	Total	**43,688**
	Grand Total	**69,282**

Desired Future Condition

C

Mt. Shasta Management Area is managed predominantly for Cultural and historic values, visual quality and recreational values. Activities include driving for pleasure, viewing Mt. Shasta, skiing, snowmobiling, sledding, hiking, camping and other activities centered on the spiritual and social aspects of the mountain. Vegetation management activities are consistent with the above mentioned values in this Management Area.

With the exception of developed campgrounds, Forest Service facilities are meeting visitor demand. This need is balanced by campground facilities in the private sector. Quality nordic and alpine skiing is available on public and private lands. Although road access has not increased appreciably over the last ten years, several wilderness access roads are surfaced. Developed facilities including trails, campgrounds, warming huts, day use areas, parking areas and the new year-round visitor center have been designed with visual quality, resource protection and visitor distribution in mind. There is an active and ongoing signing program to designate, roads, trails, vistas, and unique interest areas. Use has been dispersed from high use areas such as Panther Meadows, Sand Flat, and Bunny Flat, and restoration has taken place where resource damage had occurred. A balance of both roaded and roadless hunting opportunities is being maintained.

Sixty-three percent of the 69,282 acres in this management area are allocated to Matrix, 7% to Administratively Withdrawn Areas such as the Shasta Mudflow Research Natural Area and Prescription I areas adjacent to the wilderness, and 30% to Late-Successional Reserve and Riparian Reserves.

Suitable Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wildfire plays a key role in stand development. The actual target stand densi-

ties depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable Matrix lands as a by product of ecosystem management is expected to provide approximately 53 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 91%; Management Prescription VI, Wildlife Habitat Management about 1%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 8%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix.

Late-Successional Reserves and Managed Late-Successional Areas are located south of Avalanche Gulch, in the area from Intake Springs, north towards Military Pass, in the vicinity of Elk Flat, and in a small managed Late-Successional Reserve adjacent to the Shasta Mud Flow Research Natural Area just south of Elk Springs. The landscape of the Late-Successional Reserve appears natural with much of the area in late- successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

D

1. Survey for Peck's lomatium in the Hotlum area. Survey for pumice moonwort in potentially suitable lodgepole pine habitat. Survey wetlands for adder's-tongue fern.
2. Pending completion of a conservation strategy for Wilkins' harebell, limit recreational impacts to the harebell in the Panther Creek area.
3. Conduct a long-term thematic study of the archaeological sites representing the Weed Lumber Company Railroad Logging System. Assess the potential for long term scientific research and public interpretation, including the possible recreational use of the historic railroad grade.
4. Interpret the historic character of the Mt. Shasta Ranger District Office. Provide direction concerning structural restoration. Nominate the Mt. Shasta Ranger District compound for inclusion in the National Register of Historic Places.

5. Interpret the Everitt Memorial Highway and the Mud Creek Dam and Ditch for their cultural significance.
6. Develop and implement a management plan for Panther Meadows in partnership with the Native American community. The plan should emphasize the health of the meadow and its continued use by Native Americans.
7. In order to create a desirable mosaic of vegetation on the north and west sides of the area, continue the program of brushfield conversion and reforestation in areas that are not prime deer habitat.
8. Manage for bitterbrush in Prescription VI lands for this Management Area as follows:
    a. Areas with less than 30 percent conifer crown closure and with significant amounts of bitterbrush (more than 500 plants/acre) will be managed primarily for bitterbrush production.
    b. Areas with more than 60 percent conifer crown closure and without significant amounts of bitterbrush will be managed primarily for timber.
    c. Areas between 30-60 percent conifer crown closure and with significant amounts of bitterbrush (500 or more plants/acre) will have management activities designed to achieve optimal use of bitterbrush and timber resources. This will usually result in an irregular pattern and/or mosaic of patches, clumps or stringers of bitterbrush intermingled with timber or vice versa. The minimum size stand to be managed for, in timber, is about one acre and, in bitterbrush, about one/tenth acre.
9. Work with the cities, county and the CDF to emphasize fire protection of structures and plantations along the urban interface.
10. To reduce the possibility of wildfire, restrictions will be used, when needed, to manage the plantations adjacent to Mt. Shasta City. Reduce human-caused ignitions from campfires, smoking and overnight camping.
11. Evaluate and prepare communication site plans for all electronic sites as needed.
12. Review options and develop winter OHV facilities. Coordinate this effort with the existing sites on adjacent National Forests and other lands to provide a cohesive network of trails and facilities.
13. Study opportunities for winter sports including snowmobiling, nordic and alpine skiing, and snow play. Designate appropriate roads as snowmobile and skiing routes.
14. Maintain winter OHV closure above Everitt Memorial Highway from Cascade Gulch to Panther Meadows. Maintain summer OHV closure in the Sand Flat area by restricting travel off the main Sand Flat Road. Maintain summer OHV closure in the upper ski bowl by restricting travel above the parking lot.
15. Monitor recreation use, minimize impacts, and restore vegetation in high use areas such as Panther Meadow.
16. Establish a year-round visitor center along the I-5 corridor. This center will provide the public with information and interpretation of surrounding areas.
17. Maintain McGinnis Springs/Wagon Camp in its current condition pending evaluation of its suitability as a SIA.
18. Coordinate management of pallid bird's-beak with Siskiyou County and adjacent private landowners.
19. Manage for a high level of water quality of important domestic water sources at Intake, Bear, McBride, McGinnis, and Howard Springs as well as Squaw Valley Creek. Identify and develop water sources for road maintenance, fire suppression, and wildfires.
20. Manage existing hardwood types to maintain or improve stand health and wildlife habitat.
21. Coordinate management activities with Native Americans. If significant cultural or historic sites are identified, manage those specific areas under Management Prescription XI.

4 - Forest Wilderness Areas

Castle Crags Wilderness

Counties: Shasta/Siskiyou
Ranger District: Mt. Shasta
Elevation: 2,300 to 7,200 feet
National Forest Land: 10,483 acres

Description

A

Location:

The Castle Crags Wilderness lies southwest of Dunsmuir just off Interstate 5. The southeast boundary of this Wilderness is shared with Castle Crags State Park.

Physical Environment:

The terrain in this Wilderness is characterized by outstanding and spectacular sheer granite cliffs and spires along an east-west ridge. Many small lakes and streams are found in the area.

Biological Environment:

Vegetation consists of large brushfields with scattered mixed conifers in the drainages. There are large areas of outcrops without vegetation, and bare ground.

Sensitive Plants:

Two sensitive plants are known to occur in this MA, Castle Crags harebell and the newly described Klamath cinquefoil. Castle Crags ivesia, another new species, may also occur in this MA. Refer to Appendix P for additional information.

Management of the Area:

Castle Crags was designated as a Wilderness with the passage of the California Wilderness Act in 1984. It is used primarily by hikers and backpackers. The area is bisected in an east-west direction by the Pacific Crest Trail (PCT).

Management Prescriptions

B

All 10,483 acres in this Wilderness are managed under Management Prescription V - Wilderness Management. This figure includes 10 acres of heritage resource management.

Desired Future Condition

C

The diorite and granodiorite cliffs of the crags provide high quality climbing opportunities for all experience levels. Information and education programs have been instituted to reduce climbing related accidents. In addition to the spectacular cliffs of the crags themselves, the PCT leads to several alpine lakes where camping and fishing are popular. Water quality is very high at the springs in the area and good in the creeks and lakes. Very few of the creeks run above ground year-round, and water availability continues to limit use to those areas with abundant water.

Air quality is high and exceeds the Federal Air Quality standards for the Sacramento Air Basin. Visual quality is high within and around the Wilderness. The rugged slopes and difficult access keep disturbance to a minimum. The surrounding views include Mt. Shasta to the north, Trinity Alps to the west, and Mt. Lassen to the south.

Hiking and riding trails are well marked and well used. Trails are maintained and the Little Castle/Heart Lake trail has been improved. The parcel which holds this trail segment has been acquired. Fire hazards are managed according to the Wilderness Management Plan using natural and planned ignitions. This has allowed some fires to burn without large scale destruction.

Sites important to Native Americans, including the site of the Battle of Castle Crags, are interpreted for the public. Non-native American history is also interpreted.

Supplemental Management Direction

D

1. Search appropriate habitat for Castle Crags ivesia. Coordinate management of the ivesia and the Castle Crags harebell with the State Parks Department.
2. Develop an interpretive plan that provides historical information on the significance of the Castle Crags for Native Americans. This Plan should also address the Battle of Castle Crags. Provide information on available Non-native American history.
3. Develop a fire plan for the area which uses planned and unplanned ignition to restore and maintain natural conditions. Upon implementation of this plan, maintaining air quality is an overriding consideration.

4. Acquire the Castle Lake parcel (Sec. 19, T39N., R4W).
5. Coordinate recreation plans, a Wilderness Management Plan, and resource management activities with Castle Crags State Park personnel.
6. Emphasize special recreational values and unique wildlife, fisheries, and riparian resources.
7. Develop trailhead facilities as described in the interim management plan for the PCT.

Chanchelulla Wilderness

County: Trinity
Ranger Districts: Hayfork/Yolla Bolla
Elevation: 3,200 to 6,400 feet
National Forest Land: 7,800 acres

Description

A

Location:

The Chanchelulla Wilderness lies in rural Trinity County about 10 miles southeast of Hayfork.

Physical Environment:

Topography is moderate to steep, with 40 to 70 percent slopes. This Wilderness is within the Browns Creek and Hayfork watersheds. These watersheds contain several streams which originate within 1.5 miles of the Wilderness boundary. What little water is available has good water quality. The summit of Chanchelulla Peak has religious significance for Native Americans (Wintu Indians).

Biological Environment:

Vegetation consists of brushfields interspersed with pockets of conifers in the drainages on the south side of the main divide. The north side of the divide consists of mixed-conifer stands. The natural low flows of the local streams offer limited fishing opportunities. The area has favorable wildlife habitat, especially for deer.

Sensitive Plants:

Little is known about the area botanically, and no sensitive plant populations are documented.

Management of the Area:

Chanchelulla was officially designated a Wilderness with the passage of the 1984 Wilderness Act. The area receives limited recreation use.

Management Prescriptions

B

All 7,800 acres in this Wilderness are managed under Management Prescription V - Wilderness Management. This figure includes 40 acres of Heritage Resource management.

Desired Future Condition

C

The landscape of this Wilderness has remained in a natural state, with subtle evidence of human intervention. Large areas without trails provide solitude for users.

Management direction is consistent with the Chanchellula Wilderness Plan. The Wilderness Plan, developed in partnership with local Wintu Indians, reflects the sensitivity of the cultural resources issues for the area.

Interpretive plans for the area are effective in marketing the wilderness experience to relieve excessive use in adjacent wildernesses. Interpretation is also helping the public become aware of the opportunities provided by the wilderness — an essentially unmodified area.

Prehistoric and historic archaeological sites, which are located along the historic Deerlick Springs Trail, are interpreted. Prehistoric and historic archaeological sites are protected through stabilizing, patrolling and limiting public use.

Supplemental Management Direction

D

1. Encourage botanical exploration of this area by botany students and the California Native Plant Society.
2. Develop a management plan for Chanchelulla Peak in partnership with the Native American community. The plan should emphasize contemporary Native American use of the area.
3. Develop a fire plan for the area which uses planned and unplanned ignition to restore and maintain natural conditions.
4. Develop a Wilderness Management Plan.
5. Provide users with pamphlets pertaining to the history and prehistory of the Wilderness.
6. Increase public awareness concerning the historic nature of the trail systems that are still in use today.

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Mt. Shasta Wilderness

County: Siskiyou
Ranger Districts: McCloud/Mt. Shasta
Elevation: 8,000 to 14,162 feet
National Forest Land: 38,560 acres

Description

A

Location:

The Mt. Shasta Wilderness surrounds Mt. Shasta from about the 8,000-foot level to its peak.

Physical Environment:

Formed by periodic volcanic activity over the last 100,000 years, Mt. Shasta and its surrounding lands display many unique geologic features. These include numerous lava flows, mud flows, five glaciers, and three major waterfalls. Other unusual geologic features include Shastina, the smaller cone on the flank of Mt. Shasta, the Red Banks, and Thumb Rock. Terrain on Mt. Shasta is rugged and dissected. Slopes range from 20 to 40 percent at the lower elevations and between 55 and 65 percent higher on the mountain. This Wilderness is within the Upper McCloud, Squaw Valley, Shasta, and Sacramento watersheds. Three major perennial streams and many intermittent streams originate high on the mountain slopes.

Biological Environment:

Low growing forbes and dwarf shrubs are scattered among the mixed-conifer forest. Late-Successional Shasta red fir is found below the 8,000-foot level.

Sensitive Plants:

Two sensitive plants have been reported from the MA: Wilkins' harebell and northern daisy. Refer to Appendix P for additional information.

Management of the Area:

Mt. Shasta was officially designated a Wilderness with the passage of the California Wilderness Act of 1984. The area is managed for yearlong recreation use. Photographers and painters, both private and commercial, are attracted by its outstanding characteristics. The most significant historical feature is the Sierra Club alpine cabin which was built from native stones in 1922. Located on private land within the Wilderness boundary, the lodge serves as a stop-over point for many people climbing the south side of the mountain.

Special Areas:

In addition to its wilderness designation, Mt. Shasta is also a Recreation Area and a National Natural Historic Landmark. In 1926 the Secretary of Agriculture designated the Mt. Shasta Recreation Area. Fifty years later, in 1976, about 8,000 acres on the top of Mt. Shasta were classified as a National Natural Historic Landmark by the Secretary of Interior. Some 1,640 acres have been proposed for inclusion in a Red Butte-Red Fir Ridge Research Natural Area (RNA). Mt. Shasta has retained its long-held religious significance as a focal point for Native American tribes in the region.

The area was determined to be eligible for historic designation under section 106 of the National Historic Preservation Act. This eligibility means that all activities will be coordinated with Native Americans to determine if the activities would adversely affect the religious significance of sites within the Management Area.

Management Prescriptions

B

All 38,560 acres in this Wilderness are managed under Prescription V - Wilderness Management. This figure includes the proposed Red Butte-Red Fir Ridge RNA.

Desired Future Condition

C

At 14,162 feet, Mt. Shasta dominates the landscape. While most of the area is above treeline, large stands of Shasta red fir and whitebark pine grow at lower elevations. With the exception of the Red Butte-Red Fir Ridge RNA this area is managed for wilderness goals.

Most climbers continue to use the historic route in Avalanche Gulch to reach the summit of Mt. Shasta. The rugged landscape and limited water continues to inhibit backcountry camping and recreation use.

The Mt. Shasta Wilderness Plan and the accompanying Environmental Impact Statement are in place. They have successfully distributed visitor use to minimize resource impacts and to provide solitude. Wilderness rangers are available year-round to provide information and answer questions. In addition, the Wilderness Plan has also addressed sensitive plant populations, fire management concerns, new and existing trail routes, interpretive needs and the management of the Red Butte-Red Fir Ridge RNA.

As an eligible property for the National Register of Historic Places, the cultural and spiritual areas have

been evaluated. Spiritual use and worship continue to be high. They are compatible with protection and restoration of this fragile alpine environment. Historic sites are interpreted. Public use is limited and monitored at sites sacred to Native Americans.

Supplemental Management Direction

D

1. Survey for additional populations of northern daisy.
2. Pending completion of a conservation strategy, protect Wilkins' harebell from recreational impacts in Squaw Creek meadows.
3. Develop an interpretive plan that will emphasize the importance of the mountain to Native Americans as well as its spiritual significance to Non-native Americans. Provide information on the cosmological and spiritual aspects of the mountain as it relates to the many Native American groups who are associated with it. Provide information on Non-native American historic aspects of the mountain including exploration, recreation, art, and science.
4. Search for a suitable lodgepole pine RNA candidate.
5. Complete and implement the Environmental Impact Statement and Wilderness Management Plan. The Plan will include the following;
   - Provide visitor interpretation of the unique features of the mountain;
   - Pending completion of a species management guide, protect Wilkins' harebell from recreation impacts in Squaw Creek Meadows; and
   - Develop a fire plan for the area which uses planned and unplanned ignition to restore and maintain natural conditions.
6. Coordinate management activities with Native Americans. If significant cultural or historic sites are identified, manage those specific areas under Management Prescription XI.

Trinity Alps Wilderness

County: Trinity
Ranger Districts: Big Bar/Weaverville
Elevation: 2,000 to 9,000 feet
National Forest Land: 405,128 acres

Description

A

Location:

The Trinity Alps Wilderness is located in portions of three National Forests — the Shasta-Trinity, Klamath, and Six Rivers.

Physical Environment:

The eastern portion of the Alps (the "White or Red Trinities") is characterized by high granite peaks, alpine meadows, and mountain lakes. The rugged, timbered terrain on the west side of the Alps is known as the "Green Trinities." The high, rugged terrain which dominates the eastern portion makes this the most spectacular part of the Wilderness. Here Pleistocene glaciers carved valleys and created beautiful lake-filled basins. Sawtooth ridges, sharp peaks, ice-scoured domes, glacial moraines and grassy meadows can also be seen here. Unique geologic features include: Limestone Ridge, Manzanita Cave, and Soldier Creek Cave. Major peaks dominate the area; they are: Salmon Mountain, Potato Mountain, Cabin Peak, Thompson Peak, Tri-Forest Peak, Black Mountain, Red Rock Mountain, Sugar Pine Butte, and Ycatapom Peak.

Remnants of early-day mining activity are scattered throughout the Wilderness. Old ditches, adits, equipment, and structures are widely dispersed and substantially unnoticeable.

Many lakes are found in the eastern and central portions of this Wilderness; the most predominate are Canyon Creek, Granite, Papoose, Mirror, Sapphire, and Emerald. The area is dissected from north to south by tributaries of the Trinity River, many of which are important to anadromous fisheries. The most prominent drainages are Virgin Creek, Slide Creek, East Fork of New River, Upper Big French Creek, North Fork Trinity River, Rattlesnake Creek, East Fork of the North Fork Trinity River, Upper Canyon Creek, Stuart Fork, Swift Creek, and Upper Salmon River. The northeastern portion of the Wilderness is within the Coffee Creek watershed.

Climate is moderate, but varies considerably with altitude. Annual precipitation is 60-70 inches with much of it occurring as snow. A few permanent snowfields are found on north-facing slopes at higher elevations.

Biological Environment:

In some of the higher glaciated areas, where bedrock has been scoured by ice, there are few trees surviving on thin and poorly developed soils. Pine, fir, cedar, spruce, and other evergreens predominate above 4,000 feet. Oak, laurel (or bay), maple, madrone, and other hardwood trees grow on the lower slopes. On many south-facing slopes, especially in the areas which have burned, there is dense manzanita, scrub oak, and other types of brush. A variety of grasses and flowers flourish throughout the area, particularly in the high meadows.

A wide variety of wildlife is found in this Wilderness. The mountain lakes are stocked with brook, rainbow, and German brown trout. The area also provides habitat for steelhead and salmon populations. It contains good habitat for deer, bear, goshawk, wolverine, pine marten and fisher.

Sensitive Plants:

This MA is very diverse botanically and includes populations of 11 sensitive plant species which are concentrated in riparian areas, rock outcrops, and on ultramafic soils. Tracy's penstemon is endemic to this MA. Refer to Appendix P for additional information.

Management of the Area:

With the passage of the California Wilderness Act in 1984, the Salmon-Trinity Alps Primitive Area became known as the Trinity Alps Wilderness. The area is frequented by hikers, hunters, campers, fishermen, and equestrians. More than 700 miles of hiker/equestrian trails are maintained for recreation use. About 19 miles of the Pacific Crest Trail pass through the area. Within the Wilderness is a three-mile segment of New River and an eleven mile segment of the North Fork of the Trinity River which are components of the National Wild and Scenic Rivers System. An additional 11 miles of Virgin Creek is proposed for addition to the National Wild and Scenic Rivers System. The Wilderness contains portions of many grazing allotments. The Big Bar, Trinity Alps, Swift Creek, Trinity River, and Battle Canyon allotments are administered by the Shasta-Trinity National Forests. (The Trinity Alps and Swift Creek Allotments are in an inactive status and will not be reactivated during this planning period). An additional five allotments are located along the Trinity Divide and are administered by the Klamath National Forest. Seasonal mining takes place in portions of the Wilderness. Wildlife and fisheries are important considerations in the management of this area.

Special Areas:

Three areas have been proposed for establishment as Research Natural Areas (RNAs): (1) Stuart Fork (1,500 acres); (2) Preacher Meadows (1,850 acres); and (3) Manzanita Creek (7,250 acres).

Management Prescriptions

B

All 405,128 acres in this Wilderness are in Management Prescription V - Wilderness Management. This figure includes proposed RNAs, Wild and Scenic River segments, and heritage resource management.

Desired Future Condition

C

The Trinity Alps Wilderness is a mix of landscapes ranging from low elevation chaparral and mixed conifer forests to scenic alpine areas. Evidence of human activity is scarce. The trail system accesses the area, however, most of the land base is accessible only by cross-country travel. Visitors can view wildlife, vegetation, virgin stands of Old-Growth, large granite features, lakes, and streams. Events such as wildfires and naturally-caused vegetative disturbances are occasionally apparent but do not dominate the landscape. Air and water resources are of very high quality.

Ground disturbing management activities are limited to those specifically approved in the Wilderness Management Plan. Evidences of human activity remain apparent where culturally significant sites occur. There is limited evidence of historical uses in areas that were inhabited from the 1850s to the 1930s. Approved range and mining activities continue and are reasonably compatible with wilderness values. Administrative presence that existed prior to the wilderness designation is evident.

Wilderness education programs have raised visitor awareness concerning human refuse. As a result, the levels of refuse within the wilderness have been significantly reduced from those of 1980's.

The Trinity Alps trail system has a variety of maintenance levels. High standard trails exist where public demand is highest. Other trails are maintained at differing, lower standards to accommodate more primitive, less used areas.

Cultural resources are inventoried and interpreted. Significant historical sites are retained and periodically maintained to preserve interpretative qualities for wilderness visitors. Non-significant sites are either rehabilitated or left to natural processes of deterioration.

Wilderness patrol is provided at a level commensurate with public use, the need for protection of the Wilderness, and safety of the users.

Fisheries management consists of providing a fishing experience to sportsmen. Modifications for fishery habitat are considered only for threatened or endangered species. Artificial planting of hatchery reared trout in high mountain lakes continues under the jurisdiction of the California Department of Fish and Game (DFG).

A variety of wildlife habitat is available to support indigenous species. Wildlife species are present at levels that represent the natural state.

Active mining claims are administered to minimize impacts. There is an approved Plan of Operations for each active claim. Only mining claims which have passed a mineral exam, or prior rights determination, remain active.

Grazing allotments are administered and monitored to eliminate impacts. Allotment Management Plans are updated and followed.

Resource inventory is performed periodically to ensure that impacts remain within the acceptable limits. Where the acceptable limits are exceeded, mitigation is instituted immediately.

All special uses are administered to maintain the environmental quality of the wilderness resource.

Search and rescue actions are coordinated with local agencies to ensure that all personnel involved are aware of the management emphasis specific to wilderness. Search and rescue operations are performed in a manner consistent with other wilderness uses/restrictions.

Fire management is prescriptive, allowing wildfire to perform its ecological function within defined parameters.

All inholdings have been acquired; this reduces the presence of nonconforming uses within the Wilderness boundary.

Supplemental Management Direction

D

1. Inventory the cultural resources found within the Wilderness and include them in the Forests' inventory for evaluation of significance. Identify those cultural resources that are eligible for inclusion in the Federal Register of Historic Places and prepare preliminary management plans for them.
2. Interpret the designated historic sites in the Wilderness by using off-site (outside the Wilderness) interpretations.
3. Where possible, within Wilderness management guidelines, maintain or improve anadromous fish habitat in the New River, Canyon Creek, the North Fork and their tributaries.
4. Develop a fire management plan which uses planned and unplanned ignition to restore and maintain natural conditions. When implementing this plan, maintaining air quality is an overriding consideration.
5. Determine pre-existing valid mineral rights for all mining claims. For those claims determined to have valid rights prior to Wilderness establishment, and upon receipt of a request for an operating plan, work with the claimant to design an economical operation consistent with wilderness values. Operating plans cannot be approved prior to determination of pre-existing valid rights.
6. Manage the grazing allotments so that they will not create erosion problems or cause over use of the forage resource or deterioration of riparian habitat.
7. Search for suitable candidates for dry subalpine meadow, fen, and montane freshwater marsh RNAs.
8. Incorporate protection of sensitive plants into the Trinity Alps Wilderness Plan.
9. Subsequent to designation by Congress, prepare a Wild/Scenic/Recreation River Management Plan for National Forest lands within the proposed corridors of Virgin Creek, the North Fork Trinity River, and the existing Wild and Scenic New River corridor.
10. Develop a Wilderness Management Plan which defines the future protection and management of this diverse area.
11. Within Wilderness guidelines emphasize wildlife management within key wildlife areas and spotted owl habitat.
12. Assess the opportunity for reintroduction of the Roosevelt elk in cooperation with the California Department of Fish and Game.

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Yolla Bolly-Middle Eel Wilderness

Counties: Tehama/Trinity
Ranger District: Yolla Bolla
Elevation: 2,600 to 7,863 feet
National Forest Land: 36,805 acres

Description

A

Location:

The Yolla Bolly-Middle Eel Wilderness lies within the boundaries of the Mendocino, Six Rivers, and Shasta-Trinity National Forests.

Physical Environment:

Within the Shasta-Trinity National Forests, topography is generally moderate although Devils Hole and Buck Creek are extremely rugged. The area is drained by tributaries of the South Fork Trinity River and Cottonwood Creek. Black Rock and North Yolla Bolla Lakes are the only lakes within the Wilderness that offer fishing and camping opportunities. The headwaters of the South Fork Trinity River begin here.

Biological Environment:

Vegetation at low elevations consists of pine-oak, oak-woodland, chamise-chaparral and, at mid-elevations, mixed conifer types. The upper elevations are covered with true fir stands interspersed with high elevation glades. Western white and fox tail pines grow in limited amounts. This area also provides good habitat for deer, black bear, pileated woodpecker, goshawk, pine marten, and fisher.

Sensitive Plants:

This MA is poorly known botanically but may have potentially suitable habitat for several sensitive plants.

Management of the Area:

The Yolla Bolly-Middle Eel Wilderness was formally designated as a Wilderness in 1964 with additions under the 1984 Wilderness Act. A short segment of the South Fork Trinity River is proposed as an addition to the National Wild and Scenic Rivers System. Managing wildlife is an important consideration.

Management Prescriptions

B

All 36,805 acres in this Wilderness are managed under Management Prescription V - Wilderness Management.

Desired Future Condition

C

This Wilderness is located in a Class I Federal airshed, subject to Section 169A of the Clean Air Act. It is governed by EPA regulations to assure progress toward the Congressionally declared goal of; ..."the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas in which impairment results from manmade air pollution." Working together personnel of the Mendocino and Shasta-Trinity National Forests continue to gather baseline data on air quality to monitor the achievement of Class I standards for this Wilderness.

The fire management plan addresses confine, contain, and control suppression strategies. Topography and natural barriers are used to minimize the impact on wildfire suppression tactics.

Stream fishing is limited to early summer, because many of the streams are intermittent and disappear by August. Big game, blacktail deer, and black bear range during summer. Deer are plentiful in the Wilderness. Small game species include mountain quail, grouse, and tree squirrels. Predators and raptors include mountain lions, bobcats, coyotes, and golden eagles.

Camping and big game hunting are the major recreation activities in this Wilderness. There is concentrated recreation use at Black Rock Lake, North Yolla Bolla Lake, Tomhead Saddle, and East Low Gap. The lakes are popular for hiking and horseback riding. Adverse impacts resulting from concentrated recreation activities, hiking, camping, and equestrian use are subsiding because of an effective Wilderness Management Plan and routine backcountry patrols. Limited water availability continues to inhibit widespread backcountry camping.

There are few signs of people except on trails, around lakes, and in camping areas. The degree and amount of grandeur and scenic splendor typical to many areas is limited in this Wilderness. Only a trace of alpine scenery exists. Virgin stands of native forest are found at the middle elevations. Many interesting and unusual shrubs and herbs grow in the Wilderness.

Supplemental Management Direction

D

1. Protect air quality of this Class I area in accordance with the Clean Air Act. Determine sensitive indicators for monitoring.
2. Conduct a botanical survey of ultramafic areas for Peanut sandwort and Howell's linanthus.

Search upper elevation glade margins for clustered green gentian.

3. Remove the lookout and related improvements from Black Rock Peak for safety reasons. Mitigate any adverse effects to historic values prior to removing the lookout.

4. Develop a fire management plan which uses planned and unplanned ignition to restore and maintain natural conditions. When implementing this plan, maintaining air quality is an overriding consideration.

5. Look for an opportunity to propose a Red Fir Research Natural Area (RNA).

6. Subsequent to designation by Congress, prepare a Wild/Scenic/Recreation River Management Plan for National Forest lands within the proposed corridors of the South Fork Trinity River.

7. Refer to the Yolla Bolly-Middle Eel Wilderness Management Plan for further direction.

8. Assess the opportunity for the reintroduction of Roosevelt elk in cooperation with the California Department of Fish and Game.

5 - Parks-Eddy

Counties: Shasta/Siskiyou
Ranger District: Mt. Shasta
Elevation: 3,000 to 9,000 feet
National Forest Land: 70,010 acres

Description

A

Location:

The Parks-Eddy Management Area (MA) is located in the Klamath Mountains immediately west of Mt. Shasta City. The area is bordered on the northwest by the Klamath National Forest, the Trinity Divide, and the Pacific Crest Trail (PCT).

Physical Environment:

This mountainous MA includes the headwaters of the Sacramento River, Dale Creek, Eddy Creek, and Parks Creek. Dominant features are Mt. Eddy (9,025 feet), and the Upper Sacramento River (South, Middle, and North Forks). Many alpine lakes are present near the PCT and the Trinity Divide along the western boundary. Castle Lake is one of the largest and deepest alpine lakes in the area. Little Castle Creek provides water to the community of Cragview for domestic use. The area is within the Willows, Parks, South Fork Sacramento, and Upper Sacramento watersheds. Soils in the MA are usually mixed ultramafic basil intrusive and granitic types which have a high erodibility, low to non-plantable site and high landslide potential.

Biological Environment:

Vegetation is generally mixed-conifer and evergreen brushfields. The wide variety of conifer tree species includes: mountain hemlock, foxtail pine, whitebark pine, Port-Orford cedar, and Shasta red fir. Good habitat exists for deer, black bear, goshawks, and resident coldwater fisheries.

Sensitive Plants:

Mt. Eddy is one of the outstanding botanical attractions on the Forests. In addition to its high degree of diversity, it supports populations of eight sensitive plants, most of them serpentine endemic. Trinity buckwheat, listed by the State of California as endangered, is concentrated in this MA. Refer to Appendix P for additional information.

Management of the Area:

The MA offers a variety of resource opportunities. Much of the past use has centered on mining and logging. Timber harvesting occurs on both public and private lands. In addition, there are outstanding recreation opportunities. National Forest lands surrounding Toad Lake are closed to off-highway vehicles thus providing excellent back-country dispersed recreation activities. The Sisson-Callahan National Recreation Trail (NRT) follows the North Fork of the Sacramento River through this MA. The PCT traverses the Trinity Divide with several access points. A portion of the Sacramento River below the Box Canyon Dam is being recommended for inclusion in the State Wild and Scenic Rivers System. The West Parks, Eddy, and portions of the Bear Creek and South Fork grazing allotments are located in this area. There is a past history of locatable mineral activity. Mineral exploration is a continuing activity with the potential for development of active extraction of the resource. Habitat management for the Klamath deer herd, black bear, spotted owls, and resident coldwater fisheries is an important resource activity. Maintaining diversity is also important.

Special Areas:

Research Natural Areas (RNAs) are recommended for the Cedar Basin (1,160 acres) and the Mt. Eddy area (890 acres). China Mountain and Toad Lake are recommended for designation as botanical Special Interest Areas (SIA).

Public Use and Resource Attractions - Recreation is primarily dispersed and includes hunting, fishing, camping, hiking, mountain biking, photography, snowmobiling, skiing and sightseeing. Forest Road 17 over the Parks Creek summit has been designated as part of a scenic byway. The PCT and the historic Sisson-Callahan National Recreation Trail (NRT) traverse this area; visitor use on these trails is increasing. The trails are well maintained and signed, and interpretive material is available at the District Offices. This material discusses the trails, their development, and the scenic vistas and features along each. In addition, the many alpine lakes on the western half of the area have been linked through a series of roads and trails.

Dispersed campsites are monitored for resource impacts, and closures are used where needed to allow for revegetation. Developed camping facilities complement the developments on surrounding private lands, including Lake Siskiyou. Traditionally high visitor use of Castle and Gumboot lakes has been dispersed to other areas while these campgrounds have been improved to protect them from visitor impacts. Interpretive trails have been developed to highlight features unique to this management area.

Roads are evaluated on a regular basis to determine treatment needs based on recreation, wildlife, water quality and visual quality objectives.

Fire and Fuels - Fire danger and fuel loading have been managed and reduced along the urban interface with the towns of Mt. Shasta and Dunsmuir, as well as along Interstate 5 and the Southern Pacific railroad. This action is a cooperative effort with the cities and county.

Heritage Resource - Cultural features in this area have been identified and evaluated for significance. The history and importance of the area for transportation, logging and mining has been interpreted for visitors at developed recreation sites.

Lands - Properties surrounding the summit of Mt. Eddy have been acquired and now provide a high quality backcountry experience for hikers, campers and skiers. The Upper Sacramento River above Lake Siskiyou continues to receive high use but is managed to protect the soil and water quality for wildlife and domestic use.

Management Prescriptions

B

Table 4-8 depicts the acres of each management prescription within the management area. The boundaries are depicted on the PRF map.

Table 4-8
Management Prescriptions for Management Area 5

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	23,588
	Total	**23,588**
Administratively Withdrawn Areas		
I	Unroaded Non-motorized Rec.	10,840
IV	Roaded, High Density Rec.	189
X	Special Area Management	1,613
XI	Heritage Resource Management	145
	Total	**12,787**
Riparian Reserves		
IX	Riparian Management	5,572
	Total	**5,572**
Matrix		
III	Roaded Recreation	23,284
VI	Wildlife Habitat Management	4,886
VIII	Commercial Wood Products Emphasis	893
	Total	**29,063**
	Grand Total	**71,010**

Desired Future Condition

C

Forty-one percent of the 71,010 acres in this management area are allocated to Matrix, 18% to Administratively Withdrawn Areas and 41% to Late-Successional Reserve and Riparian Reserve.

Suitable Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth, particularly in stands on sites where wildfire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable Matrix lands as a by product of ecosystem management is expected to provide approximately 20 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 80%; Management Prescription VI, Wildlife Habitat Management about 17%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 3%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix.

Late-Successional Reserves and Managed Late-Successional Areas are located in the area west of Parks Creek to the Forest boundary, north of the Mount Eddy Roadless Area, adjacent to Management Prescription VIII, within the area east of Morgan Meadows and north of South Fork Sacramento River, and in a managed Late-Successional Reserve northwest of Castle Lake. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

D

1. Develop and implement a management plan for standing historic structures including a supplemental management plan for Mt. Bradley lookout. Provide stabilization and protection where necessary.
2. Conduct additional inventories and evaluations to identify significant prehistoric sites. Develop a research design that will address important questions regarding prehistory on a local and regional level.
3. Emphasize alpine lakes fisheries management through increased trail access and habitat improvement projects.
4. Dispose of lands heavily encumbered by long-term use.
5. Acquire private lands around high value recreation areas.
6. Evaluate the potential to acquire private lands adjacent to Castle Crags in T39N., R4W Sections 29 and 33 and in T38N., R4W Section 3. Develop new access points and emphasize non-wilderness climbing opportunities on these lands if acquired.
7. Acquire inholdings on the north side of Mt. Eddy to allow expansion of the RNA boundary.
8. Develop an interpretive plan to provide historic information for recreational trail users.
9. Conduct inventories and site evaluations on historic mining sites to better understand the range of site types present and the potential for scientific research and public interpretation.
10. Develop public access points to the Sacramento River.
11. Consider impacts to traditional recreation uses of the Sisson-Callahan NRT when planning projects in the vicinity of the trail.
12. Maintain and improve access to dispersed recreation sites including access along the South Fork Sacramento River.
13. Maintain Dobkins/Durney Lake Basin in its current condition pending evaluation of its suitability as a SIA.
14. Search for RNA candidates for dry subalpine meadow, fen, and montane freshwater marsh targets.
15. Evaluate the effects of grazing on sensitive plants and botanical diversity. Implement plans to miti-

gate these effects. Consider reducing grazing allotments if necessary.

16. Perform a Port-Orford cedar risk analysis for any planned management activities in areas with that species. Implement appropriate mitigation measures to prevent the introduction of *Phytophthora lateralis* , the cause of Port-Orford cedar root disease.
17. Plan activities in the Little Castle Creek watershed so that water quality will be protected for domestic use.
18. Emphasize fishing and hunting over non-game aspects of fish and wildlife management.
19. Maintain and/or improve selected habitats for deer, bear, goshawks and spotted owls.
20. Assess the opportunity for reintroduction of Roosevelt elk in cooperation with the California Department of Fish and Game.

6 - Upper Trinity

Counties: Shasta/Siskiyou
Ranger Districts: Mt. Shasta/Weaverville
Elevation: 2,400 to 9,000 feet
National Forest Land: 73,221 acres

Description

A

Location:

The Upper Trinity Management Area (MA) is located in the Klamath Mountains west of the Trinity Divide and east of the Trinity Alps. The northern boundary is common with the Klamath National Forest. The southern boundary follows the ridge between Gozem Peak, Bonanza King Peak, the northern boundary of the Whiskeytown-Shasta-Trinity National Recreation Area, and up the Coffee Creek corridor.

Physical Environment:

The area is characterized by steep, mountainous terrain. Prominent features are the Upper Trinity River, the East Fork of the Trinity River, Mt. Eddy, and Bonanza King Peak. There are numerous alpine lakes and mountain meadows. The area is within the Upper Trinity, East Fork Trinity and Coffee Creek watersheds. Geology within the Upper Trinity MA is mixed ultramafic (serpentine) and granitic rock. Soils derived from these rock types present a host of management concerns due to high erodibility, low to non-plantable site, and high landslide potential.

Biological Environment:

Vegetation is generally mixed conifer and evergreen brush at lower elevations, with true fir and lodgepole pine at the higher levels. This MA contains 25,202 acres of suitable timber land. The area provides summer deer range and habitat for a variety of wildlife species. Reserves have been established on 17,995 acres to withdraw late-successional habitat from regulated timber harvest and other developmental activities to protect and enhance late-successional and Old-Growth forest ecosystems. There is also some resident coldwater fisheries habitat here.

Sensitive Plants:

This MA is botanically very diverse because it includes a large proportion of wet to mesic ultramafic areas. Nine sensitive plants are known to occur in the area. In addition to sensitive species, this MA is rich in wet ultramafic plant communities, especially Darlingtonia seeps. The latter are exceptionally diverse botanically and provide spectacular wildflower displays over a long blooming season. Refer to Appendix P for additional information.

Management of the Area:

The MA offers a variety of resource opportunities. Much of the area has been accessed by roads for timber harvest. National Forest land surrounding Dead Fall Lakes is closed to off-highway vehicles, thus providing excellent backcountry dispersed recreation activities. Alpine lakes and trails attract a moderate amount of recreation use. Portions of the Pacific Crest Trail (PCT) and the Sisson-Callahan National Recreation Trail are also located here. Hunters and fishermen frequent the area. A moderate amount of exploration and mining for gold occurs. Portions of the Bear Creek, South Fork-Highland and Trinity River range allotments are in this MA. Small portions of several grazing allotments along the northern boundary of the area are administered by the Klamath National Forest.

Public Use and Resource Attractions - The creeks and forest stands, along with brushfields, mountain meadows and alpine lakes provide a wide variety of recreational opportunities and wildlife habitats. Port-Orford cedar, found primarily along stream courses, remains healthy and free of the root disease that threatens this species in areas to the north.

This MA is noted for its botanical diversity. The ultramafic soil type supports several sensitive plant species. These populations have been identified and mapped and favorable habitat is created through management activities. Many streams and creeks feed into the upper Trinity River which transects the area from north to south. Mining practices modified the riparian habitat along much of this river in the past, and revegetation efforts are underway.

Land management corridors have been established along the Upper Trinity River and Coffee Creek. Cadastral surveys have established accurate land lines in the Coffee Creek area. Efforts to acquire privately-owned lands within the corridors have been successful. Public access to the Upper Trinity River and Coffee Creek provides recreational opportunities such as fishing, swimming, and rafting.

Mining activities continue along Coffee Creek and the Upper Trinity River. However, the heavy impacts typically associated with these operations are not readily evident.

The multi-purpose trailhead for the PCT, completed in cooperation with the Klamath National Forest, accommodates both winter and summer recreationists on Scott Mountain. Other trailhead access points into the Trinity Alps Wilderness have been improved according to the Wilderness Management Plan direction.

The Big Flat campground, although located on the Klamath National Forest, continues to be administered by

Shasta-Trinity National Forests' personnel. Facilities at Big Flat, Trinity River, Eagle Creek, Gold Field, and Horse Flat campgrounds are maintained according to the assigned recreation opportunity spectrum classes. Campground use is monitored to determine the need for maintenance, improvement, or elimination.

A cultural resource inventory has been completed, and interpretive programs are offered for certain sites. Protection of all cultural resources continues to be a management objective.

Special Areas:

China Mountain, Cory Peak, Deadfall Basin, Kangaroo Ridge, and Scott Mountain are recommended for designation as botanical Special Interest Areas (SIAs).

Management Prescriptions

B

Table 4-9 depicts the acres of each management prescription within the management area. The boundaries are depicted on the PRF map.

Table 4-9
Management Prescriptions for Management Area 6

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	17,596
	Total	**17,596**
Administratively Withdrawn Areas		
I	Unroaded Non-motorized Rec.	1,722
II	Limited Roaded Motorized Rec.	4,341
IV	Roaded, High Density Rec.	369
X	Special Area Management	1,064
XI	Heritage Resource Management	35
	Total	**7,531**
Riparian Reserves		
IX	Riparian Management	12,504
	Total	**12,504**
Matrix		
III	Roaded Recreation	8,161
VI	Wildlife Habitat Management	11,026
VIII	Commercial Wood Products Emphasis	16,402
	Total	**35,589**
	Grand Total	**73,221**

Desired Future Condition

C

Forty-nine percent of the 73,221 acres in this management area are allocated to Matrix, 41% to Riparian Reserves and Late-Successional Reserve, 10% to Administratively Withdrawn Areas.

Almost half of this management area is managed to maintain and enhance late-successional and "Old-Growth" forests within the Late-Successional and Riparian Reserve systems and retention areas within the Matrix.

Matrix lands are in "checkerboard" pattern with private forest ownership within this MA. Thus, private industrial forest management practices are evident interspersed across the landscape.

Suitable Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest Stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable Matrix lands as a by product of ecosystem management is expected to provide approximately 49 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites

results in stands of conifers that will provide for dispersion habitat; and

4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 23%; Management Prescription VI, Wildlife Habitat Management about 31%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 46%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix. The more significant riparian areas within this Management Area include the Upper Trinity River, the East Fork of Trinity River, and Coffee Creek.

Late-Successional Reserves are located in the west portion of the management area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

D

1. Conduct a grazing exclosure study of showy raillardella. Develop a management guide for the species.
2. Conduct inventories and site evaluations on historic mining sites to better understand the range of site types present and the potential for scientific research and public interpretation.
3. Conduct additional inventories and evaluations to identify significant prehistoric sites. Develop a research design that will address important questions regarding prehistory on a local and regional level.
4. Perform a risk analysis for any planned management activities in areas with Port-Orford cedar. Implement the appropriate mitigation measures to prevent the introduction of *Phytophthora lateralis*, the cause of Port-Orford cedar root disease.
5. Acquire lands in the vicinity of Masterson Meadow (Section 3, T39N., R7W).
6. Continue the cadastral survey program in the Coffee Creek area to establish a reliable and accurate land net.
7. Acquire private lands around high value recreation areas.
8. Phase out grazing in the River Unit of the Trinity River Allotment because of conflicts with traffic and private lands.
9. Update the range management plan for the South Highland grazing allotment.
10. Monitor recreation and grazing use in the Deadfall Basin area. Limit resource impacts to this area.
11. Develop an interpretive plan to provide historic information for recreational trail users.
12. Consider the mass movement potential of the serpentine soil types during management activities.

13. Identify the ultra-low site areas with mass movement, low plantability, and low regeneration potential in the serpentine soil types.
14. Conduct a search for a Darlingtonia seep SIA that includes showy raillardella.
15. Maintain the Twin Lakes Basin area in its current condition until it is evaluated for suitability as a SIA.
16. Search for Research Natural Area candidates for dry subalpine meadow, fen, and montane freshwater marsh targets.
17. Coordinate management of botanical SIAs with the Klamath National Forest.
18. Assess the opportunity for reintroduction of Roosevelt elk, in cooperation with the California Department of Fish and Game.

7 - Weaverville/Lewiston

Counties: Shasta/Trinity
Ranger District: Weaverville
Elevation: 2,000 to 8,100 feet
National Forest Land: 75,039 acres

Description

A

Location:

The Weaverville/Lewiston Management Area (MA) is split into two separate parcels. Portions of this MA are located to the east and west of the Whiskeytown-Shasta-Trinity National Recreation Area (NRA). The Trinity Divide forms part of the eastern boundary. The Trinity Alps Wilderness lies to the north and northwest.

Physical Environment:

Topography ranges from flat and gentle to steep and mountainous. The climate is hot and dry during the summer months and wet in the winter. Some of the higher elevations get heavy accumulations of snow. Soil types vary from highly fertile with few erosion or stability problems to granitic soils with inherent erosion problems. Major streams include: Swift Creek, Stuarts Fork, East Fork of Stuarts Fork, Clear Creek, East and West Weaver Creeks, and Rush Creek. Many of the streams provide domestic water supplies for small developments or individual homes. The watersheds of East Weaver, West Weaver, Swift Creek, and East Fork of Stuarts Fork provide water for local communities. The area is within the mainstem Trinity, Swift, Stuarts Fork, Trinity Reservoir, East Fork Trinity, Lewiston, Clear Creek, Rush Creek, and East and West Weaver watersheds. A major historic cultural feature, the LaMoine Railroad (used for logging), is located in the northern portion of the area. Another major feature, the LaGrange Mining Ditch System, is located north of Weaverville. Many aboriginal sites and examples of early-day mining also exist; some of these sites have historical significance.

Biological Environment:

Vegetation varies from oak-grey pine to high site mixed conifer stands and large, dense brushfields. This MA contains 36,000 acres of suitable timber land. Some brushfields at lower elevations provide winter range for the Weaverville deer herd. East Weaver, West Weaver and Rush Creek are classified as anadromous streams and contribute to the fishery in the Trinity River system.

Sensitive Plants:

Three sensitive plants occur in this MA: thread-leaved penstemon, Heckner's lewisia, and Salmon Mountains wakerobin. The recently described Scott Mountain fawn lily, proposed for addition to the Regional Forester's Sensitive Species list, is likely to grow here as well. Veiny arnica, a Forest endemic, is concentrated in this area as well. Refer to Appendix P for additional information.

Management of the Area:

Timber management activities, in support of wildlife and visual objectives and the production of high quality water for domestic use, are the predominant management opportunities in this MA. Recreation opportunities are limited; the area is used mostly by hunters and fishermen. The majority of the recreation use occurs along major streams, trails, and roads. A major trailhead into the Trinity Alps is located on the Stuarts Fork. Habitat management for the Weaverville deer herd and the anadromous fishery will occur where opportunities are present. The area has a history of locatable mineral activities.

Public Use and Resource Attractions - Bonanza King fire lookout is in excellent shape and in service. The old Weaver Bally lookout is available for public interpretation on the Weaverville administrative site.

Resources around the town of Weaverville (such as prime winter deer range, off-highway vehicle developments, and hiking trails) are protected and in excellent condition.

Preacher Meadows and Clear Creek campgrounds are maintained according to their ROS classification. Rush Creek campground is used only as an overflow area; it has no facilities. East Weaver campground continues to be used by people who are attending special events in the community of Weaverville.

The East Weaver, Long Canyon, Stony Creek, and Rush Creek Wilderness trailheads meet the standards developed in the Wilderness Management Plan.

There is a mountain bike trail system near the community of Weaverville and other locations within this MA. This bike system uses historical mining ditches.

West Weaver, East Weaver, and Rush Creeks provide excellent habitat for anadromous fish species. These creeks experience capacity use in seasons where the migration numbers are high. The Trinity River Restoration program, as well as the U. S. Forest Service's "Rise to the Future" program, continue to be active. Both have shown measurable successes.

Management Prescriptions

B

Table 4-10 depicts the acres of each management prescription within the management area. The boundaries are depicted on the PRF map.

Table 4-10
Management Prescriptions for Management Area 7

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	42,705
	Total	**42,705**
Administratively Withdrawn Areas		
IV	Roaded, High Density Rec.	431
XI	Heritage Resource Management	240
	Total	**671**
Riparian Reserves		
IX	Riparian Management	12,665
	Total	**12,665**
Adaptive Management Area		
III	Roaded Recreation	7,192
VI	Wildlife Habitat Management	1,284
VIII	Commercial Wood Products Emphasis	3,085
	Total	**11,561**
Matrix		
III	Roaded Recreation	423
VI	Wildlife Habitat Management	3,296
VIII	Commercial Wood Products Emphasis	3,717
	Total	**7,436**
	Grand Total	**75,039**

Desired Future Condition

C

Fifty-seven percent of the 75,039 acres in this management area are allocated to Late-Successional Reserve, 17% to Riparian Reserves, and 26% to Matrix lands.

About three quarters of this management area is managed to maintain and enhance late-successional and "Old-Growth" forests and aquatic ecosystems within the late-successional and Riparian Reserve systems. Additional acres are managed for late-successional within the lands designated as Matrix.

Suitable Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest Stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable Matrix lands as a by product of ecosystem management is expected to provide approximately 23 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 6%; Management Prescription VI, Wildlife Habitat Management about 44%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 59%.

Management Prescription III areas are often located around high use recreation areas and travel corridors.

Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix.

Late-Successional Reserves make up the largest portion of this management area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

D

1. Representative segments of the LaMoine Lumber and Trading Company should be identified and retained for historic research and public interpretation.
2. Consider the historic mining features of the LaGrange Mine for interpretation potential.
3. Perform a risk analysis for any planned management activities in areas with Port-Orford cedar. Implement the appropriate mitigation measures to prevent the introduction of *Phytophthora lateralis*, the cause of Port-Orford cedar root disease.
4. Make National Forest land available for established community expansion when there is clear documentation that the land is needed and suited for that use.
5. Plan and conduct management activities near trailheads and adjacent to trails to minimize effects on recreation use.
6. Resolve access problems into the Stuarts Fork Trailhead.
7. Plan and conduct activities in East and West Weaver Creek, Swift Creek, East Fork of Stuarts Fork, and Snow and Bear Gulch so that water quality will be protected for domestic use.
8. Implement habitat management activities for the winter deer range and the anadromous fishery where opportunities exist.
9. Assess the opportunity for introduction of wild turkeys.

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8 - National Recreation Area

SHASTA UNIT

County: Shasta
Ranger District: Shasta Lake
Elevation: 1,000 to 4,300 feet
National Forest Land (including Shasta Lake): 115,038 acres

Description

A

Location:

The Shasta Unit of the Whiskeytown-Shasta-Trinity National Recreation Area (NRA) encompasses lands surrounding Shasta Lake.

Physical Environment:

Topography near Shasta Lake ranges from hilly to extremely steep. The Shasta Unit is within the Pit Arm, Squaw Creek, McCloud Arm, and Sacramento Arm watersheds. Bridge Bay Resort, Jones Valley, Mountain Gate, Shasta Dam Public Utilities District, and Silverthorn Resort get domestic use water from Shasta Lake. Charlie Creek provides domestic water to the community of Lakeshore Heights. Interesting features on the Shasta Unit include Shasta Dam, second largest concrete dam in the United States, and Shasta Caverns, a natural limestone cave. Early mining and smelting operations have denuded an area around Shasta Lake. Recreation facilities include resorts, marinas, campgrounds, OHV staging area, picnic areas, boat launching ramps, shoreline hiking trails, restaurants, and motels. Private landownership within the Forest boundary is generally well developed with residences and small communities.

Biological Environment:

Vegetative cover within this unit varies from dense brush and shrubs to hardwood stands and mixed conifers. The lake and its environs provide especially good habitat for bald eagles and osprey. The area also contains one known peregrine falcon eyrie. The area also contains habitat for deer, bear, elk, and turkey. Habitat for cold and warmwater fish species is abundant. This area contains no suitable timber land.

Sensitive Plants:

The new shrub species, Shasta snow-wreath, has been found in this management area. This species, first discovered in 1992, has been proposed for addition to the Regional Forester's Sensitive Species list. No other sensitive plants are known from the unit, but several are to be expected. Two other plants endemic to the Shasta Lake area, veiny arnica and Shasta eupatorium, are found here. Refer to Appendix P for additional information.

Management of the Area:

This MA offers practically every form of outdoor recreation imaginable. However, water-oriented activities such as boating, fishing, water skiing, and houseboating are the main attractions. Recreation use at the Shasta Unit exceeds 2,000,000 visitor days annually. Nearly all of the lake surface and shoreline is administered by the Forest Service. A small area around the dam is administered by the Bureau of Reclamation. Major wildlife considerations include habitat management for bald eagles. Cold and warmwater fisheries are also important to the area. A separate management plan covers the NRA and is incorporated as part of the Forest Plan.

Special Areas:

Samwel Cave, proposed as a geologic Special Interest Area (SIA), lies within the Shasta Unit. Also within this unit is the southernmost portion of the recommended Devils Rock-Hosselkus Research Natural Area (RNA) (5,550 acres).

Desired Future Condition (Specific to the Shasta Unit)

B

The Shasta Unit of this MA is managed as a showcase recreation area. It provides high quality recreation opportunities at a variety of lake levels. Associated scenic, scientific, and historical values are conserved and interpreted through an actively managed interpretive program. Management and utilization of renewable resources is compatible with public recreation or other values contributing to public enjoyment. The unit is managed according to the current NRA Management Plan. This Plan is reviewed and revised every 5 years in order to meet public needs and demands and to support natural resource values.

Facilities are constructed and maintained to a high standard with universal access a priority for funding. A wide variety of high quality recreation opportunities are provided at all lake and economic levels. This includes adequate low water access via roads, ramps, and trails. Large, modern campgrounds have replaced small, scattered sites which were not cost effective to operate and maintain. An innovative interpretive services program has been implemented and excellent interpretive services are available. Dispersed camping opportunities, for those seeking a less managed and more tranquil recreation experience, are plentiful, es-

pecially those areas accessible by boat. Management activities maintain the visual quality at a level which provides for a landscape in which human activities are subordinate to the natural landscape.

Vegetation is managed to a level that results in healthy forest stands, maintenance of wildlife habitat, good scenic quality, public health and safety, and reduction of fire hazards. Within designated conservation areas and bald eagle and peregrine falcon nest territories, vegetation is managed for habitat enhancement to retain critical habitat elements over the long term.

Fish habitat is managed to enhance inland coldwater and warmwater fisheries for sport fishing and a wildlife prey base. Quality fisheries and wildlife habitat is maintained and enhanced for indicator and emphasis species at various lake levels. An innovative information and education program promotes increased awareness and appreciation of fish and wildlife resources in the management unit. Potential conflicts between lake users and wildlife needs are anticipated and resolved to ensure public enjoyment and safety as well as to provide for viable wildlife populations.

Threatened, endangered, and sensitive species management focuses on protecting, enhancing, and restoring their habitat. Species Management Guides have been developed and are being implemented for plant species of interest. The spread of weed plant populations has been arrested and native plants are being reintroduced where suitable.

Water quality remains excellent and is managed cooperatively with the Central Valley Water Quality Control Board.

Full service resorts are permitted and managed to meet current recreation demands while allowing for appropriate protection of other resource values. Private landowners, residents, and small communities within the forest boundary are educated and informed about local forest resources and issues. Four summer home tracts, with a total of 160 homes, are managed to meet established standards and not detract from the quality of the NRA.

An active law enforcement program provides a visible presence in the management unit while providing protection and security for visitors, facilities, and resources. The emphasis on habitat protection, under the Endangered Species Act, and boating safety has resulted in significant improvements in implementing special programs. These programs are designed to meet the needs of both wildlife and National Forest users.

Cultural resources are managed to specified standards. Sites include: Clikapudi, Squaw Creek, Hirz Mountain Lookout, Dog Creek Bridge and Potter and Samwel Caves.

TRINITY UNIT

County: Trinity
Ranger District: Weaverville
Elevation: 1,900 to 4,500 feet
National Forest Land (including Trinity and Lewiston Lakes): 59,785 acres

Description

A

Location:

The Trinity Unit of the NRA includes lands around Clair-Engle (Trinity) Lake.

Physical Environment:

The mountainous terrain bordering Trinity Lake contains flat and gently sloping land. The Trinity Unit is within the mainstem Trinity, East Fork Trinity, Stuarts Fork, Lewiston and Trinity Reservoir watersheds. Fairview Marina obtains its domestic water supply from Trinity Lake. Recreation facilities include resorts, marinas, campgrounds, picnic areas, boat launching ramps, restaurants, and motels.

Biological Environment:

The Trinity Unit generally supports a mixed conifer forest with a few areas of oak and grass. This area contains 6,400 acres of suitable timber land. The southern portion around Lewiston Lake and several south facing slopes on Trinity Lake contain brushfields that are prime winter range for the Weaverville deer herd. Trinity and Lewiston Lakes, along with adjacent land, provide habitats for cold and warmwater fisheries as well as for bald eagles and osprey.

Sensitive Plants:

One sensitive plant, thread-leaved penstemon, is found in this management area. Heckner's lewisia and Scott Mountain fawn lily (the latter is a newly described plant that has been proposed for addition to the Regional Forester's Sensitive Species list) probably grow here as well. Refer to Appendix P for additional information.

Management of the Area:

Several private resorts and many campgrounds along the lake shores provide recreation opportunities during the summer season. Recreation use diminishes during the winter. The mixed conifer forests contribute to the regulated timber harvest of the Weaverville District. Maintenance of visual quality in all resource or development activities is a major objective. Opportunities exist for habitat improvement and maintenance for fish and wildlife. Habitat management for the Weaverville deer herd, bald eagles, and osprey is an important consideration in this unit. Also important is the management of cold and warmwater fisheries habitat in Trinity and Lewiston Lakes. An important factor in the continuation of natural salmon and steelhead production in the mainstem Trinity River is the management of the artificial spawning riffles located between Lewiston Dam and Deadwood Creek. A separate management plan covers the NRA and is incorporated as part of the Forest Plan.

Desired Future Condition (Specific to the Trinity Unit)

B

The Trinity Unit of the NRA centers around Trinity and Lewiston Lakes. The visual landscape, as viewed from the lakes, is a mosaic of vegetative cover - primarily mature mixed conifer stands with some brushfields. Management activities are generally visually subordinate on the landscape.

A special visitor interpretive center at Osprey provides recreationists with a focal point of interpretation for the unique cultural history and natural history of the recreation area. This center emphasizes historical mining, ranching, and logging in addition to the natural history of the area. Programs, displays, and interpretive information are provided.

Where appropriate, all facilities within the NRA are handicap accessible. Handicap fishing opportunities are provided at Carrville dredge pond and at Lewiston Lake. Handicap opportunities are provided for wildlife viewing at Lewiston Lake. There is a viewing platform in the vicinity of Lake View Terrace. Trinity Vista provides an opportunity for handicapped viewing as well.

The west side of Lewiston Lake is highly developed with facilities for wildlife viewing, hiking, mountain biking, and fishing. The east side of Lewiston Lake is to remain undeveloped to preserve its excellent wildlife habitat. This area provides an enhanced opportunity for people to view wildlife.

Trinity Lake is accessed by boat ramps which accommodate boat launching at all lake levels. Floating boat ramps access the lake surface when the lake levels are low.

The Trinity Reservoir Fisheries Management Plan is being implemented. Warmwater fisheries improvement has been successful through a cooperative venture with the Bureau of Reclamation, California Department of Fish and Game (DFG), Trinity County, and Trinity River Conservation Camp inmate crews.

Anadromous fisheries habitat, below Lewiston Dam, is maintained to provide high quality spawning habitat.

The management plan for the bald eagle is being implemented. Conflicts between the bald eagles' use of the Trinity Lake-Lewiston Lake habitat and human use of the area have been resolved.

Monitoring and habitat enhancement projects continue to result in healthy populations of emphasis species such as deer and waterfowl. Recreational hunting and wildlife viewing are popular outdoor activities.

Forest vegetation is managed to maintain and enhance forest health, visual quality, recreational opportunities and wildlife habitat within the NRA. Regulated yields of wood fiber are provided.

Land ownership has been consolidated. There is no privately owned land within the NRA. This eliminates the opportunity for private development which sometimes conflicts with the goals and objectives of the NRA.

The NRA boundary is posted where conflicting uses threaten to encroach into it. Previous encroachments, such as the mining on Buckeye Creek and the Lewiston rifle range road, have been resolved.

Management Direction that Applies to the Entire NRA

A. Management Prescriptions

Table 4-II depicts the acres of each management prescription within the management area.

Table 4-II
Management Prescriptions for Management Area 8

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	35,469
	Total	**35,469**
Administratively Withdrawn Areas		
II	Limited Roaded Motorized Rec.	34,302
IV	Roaded, High Density Rec.	2,235
X	Special Area Management	738
XI	Heritage Resource Management	143
	Total	**37,418**
Riparian Reserves		
IX	Riparian Management	57,214
	Total	**57,214**
Adaptive Management Area		
III	Roaded Recreation	4,200
	Total	**4,200**
Matrix		
III	Roaded Recreation	40,521
	Total	**40,521**
	Grand Total	**174,823**

B. Desired Future Condition (Entire NRA)

Twenty four percent of the Management Area is Matrix and Adaptive Management Area and it is all Management Prescription III which emphasizes recreation and visuals, 20 % is Late-Successional Reserve, 21 % is allocated to Administratively Withdrawn Areas, and 33% is Riparian Reserve, a large portion of which is lake.

Forest stand densities are managed to protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area. There is no scheduled timber harvest from Management Prescription III in the Shasta Unit and minimal scheduled harvest from the Trinity Unit.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix.

Late-Successional Reserves are scattered throughout both units of the Management Area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

C

1. Search for additional populations of Shasta snowwreath and Scott Mountain fawn lily. Avoid disturbance pending completion of a conservation strategy.
2. Construct new roads for timber harvest in the foreground areas of Trinity Lake, Lewiston Lake, and the Trinity River only where these roads can meet adopted Visual Quality Objectives (VQOs). Construct no additional, permanent roads on the Shasta Unit for timber harvest. Existing roads may be relocated to improve esthetics.
3. Cooperate with the DFG in developing fish habitat management plans for Shasta, Trinity, and Lewiston Lakes. Maintain a fishery consistent with demand, recognizing that there are habitat limitations which cannot be overcome. Emphasize coldwater and warmwater fish habitat management at Shasta and Trinity Lakes.
4. Continue habitat improvement and maintenance efforts for anadromous fish on the spawning riffles in the Trinity River immediately below Lewiston Dam.
5. Perform a risk analysis for any planned management activities in areas with Port-Orford cedar. Implement the appropriate mitigation measures to prevent the introduction of *Phytophthora lateralis*, the cause of Port-Orford cedar root disease.
6. Consolidate public ownership with emphasis on shoreline property.
7. Do not acquire lands with significant known pollution sources, specifically those lands affected by mine discharges.
8. Develop and implement a plan to reduce the adverse effects of the mine drainage from Golinsky Mine.
9. Determine pre-existing valid mineral rights within the Trinity Unit. Evaluate requests for mineral leases as provided in the NRA Act.
10. Authorize no new exclusive uses of National Forest lands or water within the NRA except for those private recreation occupancy vessels (ROVs) provided for in the NRA Management Plan. Phase out existing exclusive uses, other than private ROVs, as opportunities and conditions allow.
11. Administer the NRA according to specific direction provided in the Management Plan for the Shasta and Trinity Units. This Plan is subject to periodic review and revision apart from the land management planning process.
12. Maintain Potter Creek Cave and Hirz Mountain in their current conditions until their suitability as Special Interest Areas is determined.
13. Treat slash from timber harvest activities to meet adopted VQOs or fire hazard reduction objectives, whichever are the most restrictive standards. Natural fuel manipulation for fire hazard reduction will be done to maximize protection of forest investments and interface areas.
14. Plan no regulated timber harvest in the Shasta Unit. Unregulated harvest will occur to maintain a healthy, diverse, esthetic, residual stand. In the Trinity Unit, conduct regulated harvest in a manner that is compatible with NRA objectives.
15. Continue to improve watershed conditions near Shasta Dam where smelting operations have left areas denuded of vegetation.
16. Plan and conduct any activity in Charlie Creek drainage so that water quality will be protected for domestic use.
17. Maintain or improve habitat for wildlife, including self-sustaining populations of ospreys, bald eagles, and Shasta salamanders. Improve habitat for harvest wildlife species.

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9 - Slate-Delta

Counties: Shasta/Siskiyou
Ranger District: Mt. Shasta
Elevation: 1,000 to 7,000 feet
National Forest Land: 58,842 acres

Description

A

Location:

The majority of the Slate-Delta Management Area (MA) lies east and west of the Sacramento River and Interstate 5. The east, south, and western boundaries of this MA are the common boundary between the Mt. Shasta Ranger District and those of the McCloud, Shasta Lake, and Weaverville Ranger Districts. An area just south of State Highway 89 forms the boundary to the northeast.

Physical Environment:

Terrain is mountainous. Slope instability is evident within its steep canyon walls. Fossiliferous limestone outcrops and caves are unique features near the Tombstone Peak Area. The area is within the Upper Sacramento, Lower Sacramento, and Sacramento River watersheds. The Sacramento River flows through the area. Castle Creek provides domestic use water to the community of Castella. Interstate 5 and the railroad provide a major transportation corridor. The LaMoine Railroad, in the Slate Creek drainage, is a significant historic site.

Biological Environment:

Vegetation in the north half of the MA is generally mixed conifer and California black oak. The Big Canyon area contains plantations of ponderosa pine and dense manzanita brush. Vegetation in the south half of the area is generally mixed conifer (predominantly Douglas-fir) and black oak on north-facing slopes. Scrub black oak, canyon live oak, and digger pine grow on south-facing slopes. This MA contains 18,640 acres of suitable timber land. The area contains late-successional designated reserves and one peregrine falcon site. Important habitat for deer, black bear, fisher, goshawk, and turkey is also found within the MA.

Sensitive Plants:

Two sensitive plants, thread-leaved penstemon and Scott Mountain phacelia, are highly concentrated in this MA. Suitable rock outcrop and limestone habitat for several other sensitive and endemic plants is found here as well. Refer to Appendix P for additional information.

Management of the Area:

There are a variety of resource uses and values throughout the area. A portion of the South Highland grazing allotment is here. The Pacific Crest Trail (PCT) traverses the northern portion of the MA. The Sacramento River offers recreationists outstanding whitewater boating and fishing opportunities. The Sacramento River, between Shotgun Creek and the backwaters of Shasta Lake, is managed as a wild trout fishery by the State of California. Habitat management for the Klamath and Weaverville deer herds, black bear, and spotted owls is an important consideration. Maintaining diversity is also important.

Public Use and Resource Attractions - The visual character of this Management Area is primarily affected by the presence of large blocks of private lands interspersed through this area, the Sacramento River, and the Interstate highway 5 corridor.

Vegetation types, ranging from mixed conifer stands to pine and hardwoods, vary from the higher to lower elevations. Trees and shrubs have been managed to the extent that they provide quality habitat for those species which have been identified as indicators. Prime deer winter range in the oak woodlands along the Upper Sacramento is thriving and supports a healthy herd. Water quality is high in the Sacramento River and its tributaries.

The Interstate 5 corridor bisects this area from north to south along the historic travel route with its associated artifacts and features. It is one of the main travel routes in California and provides easy access to the backcountry along Forest roads. Visual quality along this route is high with a mosaic of vegetation types.

The historic development of the transportation corridor through the Sacramento River Canyon is interpreted for the public.

Management Prescriptions

B

Table 4-12 depicts the acres of each management prescription within the management area.

Table 4-12
Management Prescriptions for Management Area 9

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	22,419
	Total	**22,419**
Administratively Withdrawn Areas		
I	Unroaded Non-motorized Rec.	873
II	Limited Roaded Motorized Rec.	1,798
IV	Roaded, High Density Rec.	111
XI	Heritage Resource Management	761
	Total	**3,543**
Riparian Reserves		
IX	Riparian Management	10,002
	Total	**10,002**
Matrix		
III	Roaded Recreation	2,758
VI	Wildlife Habitat Management	7,113
VIII	Commercial Wood Products Emphasis	13,007
	Total	**22,878**
	Grand Total	**58,842**

Desired Future Condition

C

Thirty-nine percent of the 58,842 acres in this management area are allocated to Matrix, 55% to Late-Successional Reserves and Riparian Reserves, and 6% to Administratively Withdrawn Areas.

Over fifty percent of this management area is managed to maintain and enhance late-successional and "Old-Growth" forests and aquatic ecosystems within the Late-Successional and Riparian Reserve systems. Additional acres are managed for late-successional within the lands designated as Matrix.

Suitable Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wildfire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable Matrix lands as a by product of ecosystem management is expected to provide approximately 23 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 12%; Management Prescription VI, Wildlife Habitat Management about 31%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 57%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early

seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix.

Late-Successional Reserves make up a large portion of the southern end of this management area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

D

1. Develop and implement a management plan for the LaMoine Lumber and Trading Co. Railroad Logging System and for the Burns-Castle Crags Logging Railroad System. Explore opportunities for public interpretation and recreation.
2. Conduct inventories and site evaluations on historic mining sites to better understand the range of site types present and the potential for scientific research and public interpretation.
3. Refine and implement existing management plans for the two eligible historic lookouts. Restore and utilize the Girard Ridge Lookout as a recreational cabin. Provide historic interpretation on the Forest Service fire detection system and the California Conservation Corps (CCC). Stabilize and protect the Slate Mtn. Lookout or provide extensive mitigation prior to its removal.
4. Conduct additional inventories and evaluations to identify significant prehistoric sites. Develop a research design that will address important questions regarding prehistory on a local and regional level.
5. Develop and implement an interpretive plan for sites and features within the Sacramento River Canyon that are associated with the evolving transportation corridor.
6. Provide a parking and picnic area at the Pollard Flat fishing access point.
7. Maintain Tombstone Peak Caves and Fossil Locality in their current condition until they are evaluated for Special Interest Area status.

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10 - McCloud River

Counties: Shasta/Siskiyou
Ranger District: McCloud
Elevation: 1,500 - 6,200 feet
National Forest Land: 62,682 acres

Description

A

Location:

The McCloud River Management Area (MA) lies in the southern portion of the McCloud Ranger District south of State Highway 89. The area includes much of the Upper McCloud River drainage and part of the Lower McCloud as well.

Physical Environment:

The area between Highway 89 and the McCloud River is generally flat. Steep slopes with many streams and drainages can be found elsewhere in this MA. The area is within the Squaw Valley, Upper McCloud, and Lower McCloud Watersheds. Prominent features include Lake McCloud, Hawkins and Squaw Valley Creeks, and the Upper and Lower McCloud River. Water from the lake is transported via an aqueduct to Iron Canyon Reservoir for power generation at the Lower Pit River Power Houses. The northern portion of the area, surrounding Lake McCloud, is owned by the Hearst Corporation. There is a potential for geothermal exploration.

Biological Environment:

Timber stands, with large volumes of later seral vegetation, can be found on public land. Predominant timber species include Douglas-fir, ponderosa pine, sugar pine, and incense-cedar. Live oak, black oak, and tanbark oak grow on dry sites at low elevations. This MA contains 4,833 acres of suitable timber land. Common brush species include: manzanita, snowbrush, buckbrush, bitterbrush and deer brush. Alder and willow grow in the riparian areas. One of the premiere trout streams in California, the McCloud, supports a native strain of rainbow trout once used to stock many rivers around the world. The McCloud River was the only river in California supporting a remnant population of bull trout (listed as 'endangered' by the State of California.) This species was declared extirpated by the California Department of Fish and Game (DFG) in 1986, but a recovery plan is being formulated. Lake McCloud, a popular fishing lake, is part of the Pit River hydroelectric project. Most of the southern portion below Lake McCloud is designated as Late-Successional Reserve. A wide variety of other wildlife habitat includes black bear, deer, pine marten, fisher, goshawks, and mountain lions.

Sensitive Plants:

Much of this MA is poorly known botanically. Two sensitive plants are known to occur here, the Salmon Mountains wakerobin and Howell's lewisia. In addition, a local endemic, Shasta eupatorium, is known from limestone outcrops in the southwest corner of the MA. Refer to Appendix P for additional information.

Management of the Area:

Most of the District's developed recreation sites are located in this MA. Developed and dispersed recreation use is very high. Fishing and the waterfalls of the McCloud River are the main attractions. The Lower McCloud River is designated as a State Wild Trout Stream for about 10 miles below the dam. The Upper and Lower McCloud River, as well as Squaw Valley Creek, is managed under a Coordinated Resource Management Plan (CRMP) to protect its unique and outstandingly remarkable features. Habitat management for black bear and spotted owls is important.

The Upper McCloud River offers excellent fishing for stocked trout. The Lower McCloud is an outstanding native trout fishery. High quality habitat for "Old-Growth" dependent species such as spotted owls dominates the Lower McCloud area Late-Successional Reserve. Good summer deer range and cover is found in the Upper McCloud Matrix where high quality stands of bitterbrush have been managed. Excellent opportunities for bird and mammal viewing are available as well as sport hunting and fishing.

Heritage Resource - Archaeological sites are interpreted in areas where visitors are already directed. Sites are protected through stabilization, fencing, monitoring, and limiting public use. Because the archaeological sites along the McCloud River are important in understanding early Native American and early settler use of the River, special emphasis is placed on a thematic study of these sites.

Special Areas:

Bigelow Meadow is recommended for designation as an ecological Special Interest Area (SIA).

Management Prescriptions

B

Table 4-13 depicts the acres of each management prescription within the management area.

Table 4-13
Management Prescriptions for Management Area 10

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	54,756
	Total	**54,756**
Administratively Withdrawn Areas		
I	Unroaded Non-motorized Rec.	311
II	Limited Roaded Motorized Rec.	
IV	Roaded, High Density Rec.	483
X	Special Area Management	138
XI	Heritage Resource Management	88
	Total	**1,020**
Riparian Reserves		
IX	Riparian Management	2,072
	Total	**2,072**
Matrix		
III	Roaded Recreation	4,374
VI	Wildlife Habitat Management	459
	Total	**4,833**
	Grand Total	**62,682**

Desired Future Condition

C

Ninety-one percent of the 62,682 acres in this management area are allocated to Late-Successional Reserve and Riparian Reserve, 8% to Matrix, and about 1% to Administratively Withdrawn Areas.

The largest part of this management area is managed to maintain and enhance late-successional and "Old-Growth" forests and aquatic ecosystems within the Late-Successional and Riparian Reserve systems. Additional acres are managed for late-successional within the lands designated as Matrix.

Late-Successional Reserves constitute most of the southern end of this management area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix.

Suitable Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable Matrix lands as a by product of ecosystem management is expected to provide approximately 8 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into two management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 90%; Management Prescription VI and Wildlife Habitat Management about 10%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Supplemental Management Direction

D

1. Conduct a thematic study of the archaeological sites representing the Native American uses of the McCloud River. Emphasize sites that are being disturbed by dispersed recreation activities such as Ash Camp, Camp 4, Four Mile Flat, and Ah-Di-Na. Pursue partnerships with Shasta College, California State University Chico, or other institutions.
2. Interpret archaeological sites along the McCloud River in areas where visitors are already being directed.
3. Manage for bitterbrush in selected areas mapped as Prescription VI (Wildlife Management) within this MA.
   a. Areas identified on or prior to 1994 with less than 30 percent conifer crown closure and with significant amounts of bitterbrush present (greater than 500 plants/acre) will be managed primarily for bitterbrush production.
   b. Areas identified on or prior to 1994 with more than 60 percent conifer crown closure and without significant amounts of bitterbrush (less than 500 plants/acre) will be managed primarily for timber.
   c. Areas identified on or prior to 1994 with 30-60 percent conifer crown closure and with significant amounts of bitterbrush (500 or more plants/acre) will have management activities designed to achieve optimal use of the bitterbrush and timber resources. This will usually result in an irregular pattern and/or mosaic of patches, clumps and/or stringers of bitterbrush interwoven with timber stands or vice versa. Specific areas will be designated for management of one of the two types, but not both, on the same area. The minimum size stand, to be managed for in timber, is about one acre and in bitterbrush one/tenth acre.

   Management objectives for selected bitterbrush stands, item a. above, are as follows:

   a. Manage for an average of 800 bitterbrush plants per acre.
   b. Average conifer canopy closures should not exceed 40 percent.
   c. Maintain a mix of age and condition classes.
4. Emphasize fuel management strategies that will reduce risk and hazard from wildfires adjacent to the California-Oregon Transmission Project (COTP) powerline corridor. To enhance forest health, develop a natural fire program to reinstate fire into the ecosystem under controlled and monitored conditions.
5. Cooperate with the DFG in developing a Wild Trout Management Plan for the Lower McCloud River.
6. Divest of public lands in the Mushroom Rock area.
7. Where the opportunity arises, acquire public access along the McCloud River and Squaw Valley Creek.
8. Continue to develop trail access to and along Squaw Valley Creek and the McCloud River. Emphasize the dispersed recreational use of Tom Dow, Tom Neal, and the Pacific Crest Trail systems. Complete trailheads at Squaw Valley Creek and Ash Camp.
9. Evaluate whitewater boating opportunities.
10. Complete the implementation of the Upper McCloud Management Plan.
11. In cooperation with private landowners, PG&E, and the DFG manage the Upper and Lower McCloud River and Squaw Valley Creek under a CRMP. This Plan would help protect the unique and outstandingly remarkable features of the river environment. This Plan is included as Appendix N.
12. Maintain or improve selected habitats for black bear, spotted owls, deer, elk, and turkey.

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11 - Pit

County: Shasta
Ranger District: Shasta Lake
Elevation: 1,200 - 6,200 feet
National Forest Land: 64,376 acres

Description

A

Location:

The Pit Management Area (MA) encompasses the eastern portion of the Shasta Lake Ranger District. It lies within the District's boundary on the east and the top of the Pit River drainage on the west. Potem Creek and the watershed divide between the Pit River and Squaw Creek bound the area on the west. The Whiskeytown-Shasta-Trinity National Recreation Area (NRA) forms the southwest boundary.

Physical Environment:

Major physiographic features in this area include the Pit River, Pit Reservoir Numbers 4, 6, and 7, Iron Canyon Reservoir, Grizzly Peak, and Chalk Mountain. The area is within the Kosk, Lower McCloud, Iron Canyon, Nelson, Pit #4, Pit #5, and Pit #7 watersheds. Portions of this area, adjacent to the Pit River, are geologically unstable. The Pit River has been extensively developed for hydroelectric energy. There is potential for geothermal exploration in this MA.

Biological Environment:

The area is forested with mixed conifers, containing Douglas-fir, ponderosa pine, sugar pine, white fir, and incense-cedar. Numerous stands of black oak and mixed montane chaparral are interspersed throughout the area. This MA contains 11,900 acres of suitable timber land. The wide variety of vegetation contributes to an abundance of wildlife species, including black bear, deer, elk, and turkey. Known threatened and endangered (T&E) species include the bald eagle, the peregrine falcon, and the northern spotted owl. Portions of Late-Successional Reserves are located within the MA. The Pit River drainage system is an important trout fishery. The rough sculpin (listed as "rare" by the State of California) is present in the Pit River reservoir system.

Sensitive Plants:

Two sensitive plants are known from this MA: Salmon Mountains wakerobin and rough raillardella. Another rare plant, the Shasta jewelflower, is concentrated here. Grizzly Peak has recently been discovered to have a large number of rare and disjunct plant species, including the Forests only population of rough raillardella, a Sensitive species. Refer to Appendix P for additional information.

Management of the Area:

This MA offers a wide variety of resource opportunities. Hunting and fishing activities, along with camping in low developed and undeveloped sites, are very popular. A section of the Pacific Crest Trail (PCT) crosses this MA. Protection of bald eagles, peregrine falcons, and northern spotted owls is an important management objective. Habitat management for deer, elk, turkey, and black bear is an important consideration. Maintaining diversity is also important. Timber management activities can be expected to continue on suitable areas. Nearly half of this area is in private ownership; this requires good coordination of management activities. Continued emphasis on hydroelectric generation can be expected.

Sensitive plant populations are managed for protection and enhancement of their habitat. Species Management Guides have been developed and are being implemented for plant species of interest. Water quality in the Pit River drainage is maintained at a high level to meet a variety of objectives including promoting trout fisheries.

Heritage Resource - This area contains significant cultural and historical values that will be addressed during all project planning. If significant sites are identified they will be managed under Management Prescription XI.

Special Areas:

Grizzly Peak is designated as a botanical Special Interest Area (SIA).

Management Prescriptions

B

Table 4-14 depicts the acres of each Management Prescription within the management area.

Table 4-14
Management Prescriptions for Management Area 11

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	48,685
	Total	**48,685**
Administratively Withdrawn Areas		
II	Limited Roaded Motorized Rec.	5,143
IV	Roaded, High Density Rec.	121
X	Special Area Management	221
XI	Heritage Resource Management	30
	Total	**5,515**
Riparian Reserves		
IX	Riparian Management	2,035
	Total	**2,035**
Matrix		
VI	Wildlife Habitat Management	2,936
VIII	Commercial Wood Products Emphasis	5,204
	Total	**8,140**
	Grand Total	**64,376**

Desired Future Condition

C

Seventy nine percent of the 64,376 acres in this management area are allocated to Late-Successional Reserve and Riparian Reserves, 13% to Matrix, and 8% to Administratively Withdrawn Areas.

Most of the National Forest land within this management area is managed to maintain and enhance late-successional and "Old-Growth" forests and aquatic ecosystems within the Late-Successional and Riparian Reserve systems.

Late-Successional Reserves make up the largest portion of this Management Area from Bagley Mountain up to Stump Creek Butte and in the Chalk Mountain/ Bunchgrass Mountain area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Suitable Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable Matrix lands as a by product of ecosystem management is expected to provide approximately 9 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into two management prescriptions with more specific emphasis and

direction. They are: Management Prescription VI, Wildlife Habitat Management about 36%; and Management Prescription VIII, Commercial Wood Products Emphasis about 64% of Matrix land.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix. Riparian zones along the Pit River are managed to encourage habitat for bald eagle and peregrine falcon. Bald eagle habitat is suitable to support the number of nest sites capable on this area.

Supplemental Management Direction

D

1. Relocate the Big Bend administrative facility.
2. Utilize natural fuels reduction to protect special habitat areas and forest investments.
3. Maintain or improve selected habitats for coldwater and warmwater resident fisheries.
4. Divest of public lands in the Mushroom Rock area.
5. Manage the Pit River for dispersed, water-oriented recreation opportunities.
6. Search for a MacNab cypress stand that meets the criteria for a Research Natural Area candidate.
7. Develop a management plan for Grizzly Peak SIA.
8. Maintain or improve selected habitats for deer, elk, turkey, bear, bald eagles, peregrine falcons, and spotted owls.
9. During project level planning identify cultural and historical values. Manage significant sites under Management Prescription XI.

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12 - Nosoni

County: Shasta
Ranger District: Shasta Lake
Elevation: 1,200 - 5,300 feet
National Forest Land: 80,826 acres

Description

A

Location:

The Nosoni Management Area (MA) lies to the north of the Whiskeytown-Shasta-Trinity National Recreation Area and south of the McCloud Ranger District boundary. The eastern boundary follows the watershed divide between Squaw Creek and the Pit River. The short western boundary follows the Sacramento River.

Physical Environment:

The irregular topography is characterized by steep, dry, brush-covered south-facing slopes and forested, moist north-facing slopes. Limestone outcrops frequently occur in mountain peaks such as Tombstone Mountain and Devils Rock. These outcrops hold potential for a variety of unique features such as limestone caves, paleontological features (fossils), and limestone-related sensitive plants. Much of the riparian area along Squaw Creek is on National Forest land. The MA includes two miles of the Sacramento River and 11 miles of the Lower McCloud River. The area is within the Lower McCloud, Squaw Creek, Pit Arm, McCloud Arm, and Sacramento Arm watersheds. Private land ownership along Gilman Road and in the Interstate 5 corridor is well developed with residences and small communities. Lands along the McCloud River are owned by private clubs. There are lodges and cabins on these properties as well as large acreages of undeveloped lands. Upstream, about six miles of river are within The Nature Conservancy's McCloud River Preserve. This preserve straddles the Shasta Lake/McCloud Ranger District boundary.

Biological Environment:

Brush and hardwoods comprise 42 percent of the vegetation cover, and mixed conifers comprise the rest. Most of the timber stands are a mixture of Douglas-fir, ponderosa pine, sugar pine, white fir, and incense-cedar. There are also extensive stands of commercial-sized black oak. This MA contains 33,300 acres of suitable timber land. Vegetation in the area supports a wide variety of wildlife species. The area contains high quality trout habitat and is a summer range for resident black-tailed deer. Rocky Mountain elk, black bear, mountain lion, band-tailed pigeons, and wild turkeys also inhabit the area. The Federally listed (endangered) bald eagle and the State listed (rare) Shasta salamander also inhabit the area. Wolverines have been sighted at several locations. A portion of Late-Successional Reserve is located within this MA.

Sensitive Plants:

The area is poorly known botanically. One sensitive plant, Howell's lewisia, is known to inhabit rock outcrops along the McCloud River. Shasta eupatorium and veiny arnica, Forest endemics, occur in many locations in the MA. Refer to Appendix P for additional information.

Management of the Area:

This MA offers a variety of resource opportunities. Wildlife habitat management and timber management are important considerations. This area is not well roaded. There is a lot of private land interspersed among the National Forest land. Fishing and hunting are popular.

Public Use and Resource Attractions - The Squaw Creek drainage emphasizes riparian vegetation which is managed for bald eagle, northern spotted owl, willow flycatcher, and other riparian-dependent species. Squaw Creek is also managed for furbearer habitat.

The majority of the MA is managed for emphasis species of wildlife which includes deer, black bear, wild turkey, elk, and band-tailed pigeons. Vegetative manipulation takes place to manage habitat for elk, turkey, deer, black bear, and Old-Growth dependent species. Natural fuel management, for fire hazard reduction, is occurring.

The Devil's Rock area is designated as a Research Natural Area and remains in an unmanaged, natural state.

Limestone outcrops in the Brock Mountain area are managed for the Shasta salamander.

There are opportunities for a wide variety of dispersed recreation activities. These opportunities range from a low developmeht campground at Madrone to a large, unroaded semi-primitive area in the McCloud River drainage. Many recreational programs and facilities are in support of hunting and fishing.

The visual character of this Management Area is affected by management practices on the National Forest but also by the presence of checkerboard pattern of private lands interspersed through this area. Generally those private lands are more intensively managed.

Heritage Resource - This area contains significant cultural and historical values that will be addressed during

all project planning. If significant sites are identified they will be managed under Management Prescription XI.

Special Areas:

This MA includes the designated Devils Rock-Hosselkus Research Natural Area (RNA) (5,550 acres).

Management Prescriptions

B

Table 4-15 depicts the acres of each management prescription within the management area.

Table 4-15
Management Prescriptions for Management Area 12

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	17,015
	Total	**17,015**
Administratively Withdrawn Areas		
I	Unroaded Non-Motorized Rec.	6,792
II	Limited Roaded Motorized Rec.	2,577
IV	Roaded, High Density Rec.	194
X	Special Area Management	4,682
XI	Heritage Resource Management	40
	Total	**14,285**
Riparian Reserves		
IX	Riparian Management	12,440
	Total	**12,440**
Matrix		
III	Roaded Recreation	1,204
VI	Wildlife Habitat Management	24,352
VIII	Commercial Wood Products Emphasis	11,531
	Total	**37,087**
	Grand Total	**80,826**

Desired Future Condition

C

Forty six percent of the 80,826 acres in this management area are allocated to Matrix, 36% to Late-Successional Reserve and Riparian Reserve, and 18% to Administratively Withdrawn Areas.

Over one third of this management area is managed to maintain and enhance late-successional and "Old-Growth" forests and aquatic ecosystems within the Late-Successional and Riparian Reserve systems. A managed Late-Successional Reserve is designated in the Hoffmeister Creek, Bills Creek area east of Goose Gap and north from Brock Butte. Additional acres are managed for late-successional within the lands designated as Matrix.

Suitable Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable Matrix lands as a by product of ecosystem management is expected to provide approximately 10 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and

direction. They are: Management Prescription III, Roaded Recreation about 3%; Management Prescription VI, Wildlife Habitat Management about 66%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 31%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix.

The McCloud River and Squaw Creek are important riparian systems in this area. Riparian zones along the McCloud River are managed under the CRMP. Over 6,700 acres of this MA around the McCloud River are allocated to Management Prescription I, Unroaded Non-motorized Recreation. Lands allocated to Management Prescription I are administered to retain a semi-primitive, nonmotorized recreation opportunities while maintaining predominantly natural-appearing landscapes.

Late-Successional Reserves in this management area are located from the vicinity of Satin Peak north and east to the MA boundaries and a Managed Late-Successional Reserve (MLSR) in the area north of Brock Butte and east of Goose Gap. There is a large component of fairly continuous in the Beetle Shoeinhorse area. Other stands in this area show evidence of past timber harvest activities. These stands are being managed to bring them to maturity as old-growth habitat. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied. Stand conditions in MLSR are similar to LSR's but stand structure is more open, less dense with a park like appearance. This is due to the enhanced role of fire in MLSR's.

Supplemental Management Direction

D

1. Maintain and enhance the resident coldwater fish habitat in Squaw Creek.
2. Cooperate with the DFG in developing a Wild Trout Management Plan for the Lower McCloud River.
3. Continue to work with the Nature Conservancy, the DFG, and the McCloud River Club to manage the recreation fishery in the McCloud River.
4. Reduce naturally occurring fuels to protect forest investments and interface areas from losses due to wildfire.
5. Provide low development and dispersed recreation facilities and emphasize hunting, fishing, and hiking opportunities.
6. Maintain Potem Falls in its present condition pending evaluation as a Special Interest Area.
7. Develop and implement a program to manage and use hardwoods for energy, fiber, and wildlife habitat.
8. Observe the following special management direction in the McCloud River corridor:

   Timber access:

   a. Minimize new road construction and attempt to locate new roads away from streamcourses (by design of mid-ridge and ridgeline roads);
   b. Minimize stream crossings; and
   c. Design logging systems for maximum resource protection.

9. In cooperation with private landowners, PG&E, and the DFG manage the Lower McCloud River under a Coordinated Resource Management Plan (CRMP) to protect the unique and outstandingly remarkable features of the river environment. The CRMP is included in Appendix N.

10. Maintain or improve selected habitats for deer, elk, turkey, bear, bald eagle, northern spotted owl, and Shasta salamander.

11. Continue to work with interest groups such as the Rocky Mountain Elk Foundation, Wild Turkey Federation, and Quail Unlimited to improve wildlife habitat.

12. During project level planning identify cultural and historical values. Manage significant sites under Management Prescription XI.

13 - Front

County: Shasta
Ranger District: Shasta Lake
Elevation: 1,000 to 4,420 feet
National Forest Land: 28,883 acres

Description

A

Location:

The Front Management Area (MA) lies along the southern edge of the Shasta Lake District and east and west of Shasta Lake.

Physical Environment:

Topography is moderate to steep and rugged with rock outcroppings at the higher elevations. The area contains a two-mile segment of the Sacramento River. The area is within the Clear Creek, Sacramento Arm, Pit Arm, and Pit #7 watersheds. The upper half of Charlie Creek provides domestic water for the Lakehead community. Tracts of private property, south of Shasta Lake and within the Forest boundary, are developed with residences and small communities.

Biological Environment:

Vegetation within the area is highly variable, ranging from dense brush and shrubs to heavy stands of mixed conifers and oaks. This MA contains 2,250 acres of suitable timber land. The southern portion of the area appears desolate compared to the northern end. This is because of the copper smelting operations which took place near Shasta Dam in the 1920s and 30s. The fumes denuded the land of vegetation, and erosion was a serious problem. Planted trees and manmade erosion structures are evidence of efforts to rehabilitate these areas. The area provides limited habitat for turkey, bear, and elk. A portion of Late-Successional Reserve is located within this MA.

Sensitive Plants:

Very little is known about this MA botanically. No sensitive plants are known to occur here, but there is suitable habitat for Canyon Creek stonecrop on Behemotash Mountain and Mammoth Butte. Refer to Appendix P for additional information.

Management of the Area:

Special emphasis has been placed on providing deer winter range. The area was extensively mined in the early 1900s, and some limited mining occurs today. The Chappie/Shasta off-highway vehicle (OHV) area is located on the west side of Shasta Dam. The heavy intermix of private lands among National Forest lands requires good coordination of any management activities. Recreation opportunities are emphasized along the Sacramento River.

Public Use and Resource Attractions - The area around Dog Creek Mountain is managed for wood fiber production with a concern for the transition to wildlife emphasis on the perimeter.

Bass Mountain and Sugarloaf Mountain are managed as electronic sites to serve the north state. Sugar Pine Conservation Camp is managed under a special use permit by the California Department of Corrections.

The high quality, all level OHV area serves four-wheel drives, dirt bikes, all-terrain vehicles, and mountain bike users. It is being managed in cooperation with the Bureau of Land Management (BLM), the National Park Service, and private land owners in the area. Dispersed recreation opportunities west of Shasta Lake emphasize equestrian use.

Water quality in the MA remains acceptable with the emphasis in project planning on prevention and mitigation of erosion in the rocky soils. The Charlie Creek watershed is the domestic water source for Lakehead; water quality is excellent.

The southwest corner of the MA provides the opportunity to work with private interests to negotiate easements for the Shasta/Chappie OHV area. In this area vegetation manipulation is utilized to enhance visual quality and provide sound barriers for the recreation users on the lake. The southern portion of the MA consists of small, scattered parcels where management is difficult due to lack of rights-of-way.

Management Prescriptions

B

Table 4-16 depicts the acres of each management prescription within the management area.

Table 4-16
Management Prescriptions for Management Area 13

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	1,329
	Total	**1,329**
Administratively Withdrawn Areas		
II	Limited Roaded Motorized Rec.	2,764
XI	Heritage Resource Management	15
	Total	**2,779**
Riparian Reserves		
IX	Riparian Management	7,685
	Total	**7,685**
Matrix		
III	Roaded Recreation	3,558
VI	Wildlife Habitat Management	12,289
VIII	Commercial Wood Products Emphasis	1,244
	Total	**17,091**
	Grand Total	**28,883**

Desired Future Condition

C

Fifty-nine percent of the 28,883 acres in this management area are allocated to Matrix, 31% to Late-Successional Reserve and Riparian Reserve, and 10% to Administratively Withdrawn Areas.

The largest portion of this MA is allocated to Management Prescription VI, Wildlife Habitat, about 41%. That area is managed to maintain and enhance early-mid seral stage habitat for organisms dependent upon those conditions. Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species, such as black bear, deer and gray squirrel. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types managed for mass production for species such as gray squirrel.

Management Prescription III, Roaded Recreation about 12% of this MA, is located south of the "Shasta Unit" of the NRA.

About 3% of this MA is allocated to Management Prescription VIII, Commercial Wood Products Emphasis. The area around Dog Creek Mountain is managed for wood fiber production with a concern for the transition to wildlife emphasis on the perimeter. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands, although yields from these lands are lower than biological potential. Most of the wood product outputs are coming off of suitable land within this prescription. Forest stand stocking levels generally are maintained at higher levels than on VI lands. The forest is more single storied, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires. Wood product outputs from forest management practices within this area is yielding about 1 million boardfeet per decade.

Riparian areas are reserve zones applied along both sides of rivers, streams, lakes and wetlands. Riparian areas appear as unmanaged fingers and corridors dissecting about one third of the Matrix areas, but not as evident within other land allocations such as Late-Successional Reserves.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the functioning ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development consistent with higher level direction. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves). Vegetative cover remains very sparse west of Shasta Lake and south of Backbone Creek due to the heavy smelter activity in the early part of this century. North of Backbone Creek the vegetation was not as heavily impacted and stands generally are healthier and more productive. The southern portion of the MA consists of small, scattered parcels where management is difficult due to lack of rights-of-way.

The area around Dog Creek Mountain is managed for wood fiber production with a concern for the transition to wildlife emphasis on the perimeter.

Supplemental Management Direction

D

1. Reduce naturally occurring fuels to protect Forest investments and interface areas from losses due to wildfire.
2. In concert with the BLM and the State of California acquire lands that facilitate the Shasta Lake OHV Plan. Use green sticker funds to acquire these lands.
3. Do not acquire lands with known significant pollution sources.
4. Search for a MacNab cypress Research Natural Area candidate.
5. Plan and conduct any activity in the upper half of Charlie Creek so that water quality will be protected for domestic use.
6. Maintain or improve selected habitat for deer, elk, and turkey.

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14 - New River/North Fork/Canyon Creek

County: Trinity
Ranger District: Big Bar
Elevation: 1,382 to 5,800 feet
National Forest Land: 61,210 acres

Description

A

Location:

The largest portion of this Management Area (MA) lies in the northwest corner of the Trinity National Forest adjacent to the Six Rivers National Forest. The remainder of the area is in the middle and eastern portions of the Big Bar Ranger District, south of the Trinity Alps.

Physical Environment:

This MA is composed of two separate areas. These areas are characterized by very steep, rugged terrain with the major drainage flowing from north to south. Occasional areas can be found with slope stability problems or erodible soils. Several county roads parallel portions of the rivers in this area in addition to providing access to the Trinity Alps Wilderness. The Hobo Gulch, Canyon Creek, New River, East Fork, and Jim Jam trailheads, plus several minor trailheads are located in this MA. Also found are three campgrounds and the Denny Guard Station. The area is within the following watersheds: East Fork of North Fork Trinity, North Fork Trinity, Canyon Creek, New River, Upper New River, and East Fork New River. All of these watersheds are major tributaries to the Trinity River.

Biological Environment:

Douglas-fir is the predominant tree species within the area. Ponderosa pine, sugar pine, and incense-cedar also grow here. Hardwood and brush species, such as tanoak, black oak, madrone, golden chinquapin, ceanothus, and manzanita are common. This MA contains 8,300 acres of suitable timber land. The East Fork of North Fork, North Fork, Canyon Creek, and the New River offer fair to excellent anadromous fisheries. An abundance of deer, bear and other wildlife species can be found in this MA. A portion of the area provides prime deer winter range for the New River subunit of the Weaverville deer herd. Late-Successional Reserve covers a major portion of this MA.

Sensitive Plants:

This MA is scarcely known botanically. No sensitive plants have been documented from the area. Canyon Creek stonecrop may occur in the drainages into Canyon Creek and in the canyon itself. Refer to Appendix P for additional information.

Management of the Area:

Fishing and hiking are the two most popular forms of recreation. Portions of the Big Bar grazing allotment lie within this area. The area was extensively mined during the California gold rush and the Depression. Some mining still takes place today. This MA provides important access to the Trinity Alps Wilderness. Twenty-one miles of the New River and the lower portion of the North Fork were included as part of the National Wild and Scenic Rivers System in 1981 (see map in Appendix E of the Final EIS). Habitat management for the New River deer herd, spotted owls, steelhead, and salmon is an important consideration. Maintaining diversity is also important.

Heritage Resource - This area is rich in historic and prehistoric cultural resources. The location, identification, and cataloging of sites and the development of interpretive displays regarding cultural resources is continuing.

Management Prescriptions

B

Table 4-17 depicts the acres of each management prescription within the management area.

Table 4-17
Management Prescriptions for Management Area 14

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	45,385
	Total	**45,385**
Administratively Withdrawn Areas		
I	Unroaded Non-motorized Rec.	2,288
II	Limited Roaded Motorized Rec.	625
IV	Roaded, High Density Rec.	198
XI	Heritage Resource Management	10
	Total	**3,121**
Riparian Reserves		
IX	Riparian Management	4,319
	Total	**4,319**
Adaptive Management Areas		
III	Roaded Recreation	979
VI	Wildlife Habitat Management	3,129
VIII	Commercial Wood Products Emphasis	4,276
	Total	**8,384**
	Grand Total	**61,210**

Desired Future Condition

C

Eighty one percent of the 61,210 acres in this management area are allocated to Late- Successional Reserve and Riparian Reserve, 14% to Adaptive Management Area (AMA), and 5% to Administratively Withdrawn Areas.

Most of this Management Area is managed to maintain and enhance late-successional and "Old-Growth" forests and aquatic ecosystems within the Late-Successional and Riparian Reserve systems. Additional acres are managed for late-successional within the lands designated as AMA.

Late-Successional Reserves in this management area show evidence of past timber harvest activities. The landscape of the Late-Successional Reserve appears unmanaged with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at considerably higher levels than within the Matrix. Many patches of dead trees and snags 10 acres or less are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

The New River and North Fork Trinity Wild and Scenic Rivers comprise areas Administratively Withdrawn in wild and scenic segments of the rivers.

The visual character of this Management Area is primitive in appearance with only minimal evidence of disturbance on the landscape, most of this MA being allocated to reserves and Administratively Withdrawn classifications.

AMA lands comprise a very small portion of this MA. Suitable AMA lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable AMA lands as a by product of ecosystem management is expected to provide approximately 7 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

AMA lands are further disaggregated into three Management Prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 12%; Management Prescription VI, Wildlife Habitat Management about 37%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 51%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early

seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the AMA lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the AMA.

Supplemental Management Direction

D

1. Develop on-site interpretation of selected historic features which are considered as significant by the State Historic Preservation Office and which are accessible to public areas.
2. Upgrade the surfacing on the Forests' arterial road system.
3. Upgrade the surfacing on the Forests' campground road system.
4. Assess roaded stream crossings and upgrade where necessary to meet riparian management standards.
5. Emphasize the long-term improvement of anadromous fisheries habitat by assessing channel capacity for modification and developing projects based on the assessments. Projects could include barrier removal, rearing habitat enhancement, and riparian planting.
6. Acquire undeveloped private lands along the New River and isolated parcels in the upper New River area.
7. Develop trailheads and visitor information services at wilderness entrance points.
8. Develop and implement comprehensive public awareness programs concerning recreation, fishing, hunting, backpacking, whitewater rafting, and camping opportunities in the New River drainage.
9. Implement identified watershed improvement projects.
10. Maintain or improve selected habitats for T&E&S and game species.

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15 - Trinity River

County: Trinity
Ranger District: Big Bar
Elevation: 1,000 - 6,200 feet
National Forest Land: 87,986 acres

Description

A

Location:

The Trinity River Management Area (MA) is located in the north central part of the Trinity National Forest. It lies south of the Trinity Alps Wilderness.

Physical Environment:

The mainstem of the Trinity River, which flows east to west through the middle of this MA, dominates the area. Running parallel to the Trinity River is State Highway 299, a major transportation tie between U.S. 101 and Interstate 5. Located within this MA are the Big Bar Ranger Station, the Junction City and Burnt Ranch Guard Stations, six developed Forest Service campgrounds, the Hayfork Bally and Ironsides lookouts and electronic sites, and several rest stops. The Trinity River, with its clear water, deep gorges, and cascading waterfalls, offers high scenic value. Watersheds within this MA are the sources for many domestic water supplies. The area is within the Burnt Ranch and Helena watersheds. Many portions of this area are very unstable and have highly erodible soils, particularly the steep canyon lands and many tributary watersheds. Del Loma Cave is one of several unique geologic features in the area.

Biological Environment:

Douglas-fir is the predominant tree species within the area. Ponderosa pine, sugar pine, grey pine, and many hardwood and brush species, such as tanoak, madrone, golden chinquapin, ceanothus, and manzanita also grow here. This MA contains 19,500 acres of suitable timber land. Grass thrives on the south facing slopes. The Trinity River drainage provides important deer winter range. Bald eagles, golden eagles, pileated woodpeckers, ospreys, peregrine falcons, great blue herons, band-tailed pigeons and hooded mergansers frequent the area. Large portions of this MA are designated Late-Successional Reserve. This drainage also provides habitat for the Trinity bristle snail. The Trinity River has an important anadromous fishery.

Sensitive Plants:

Little of the area has been explored botanically, and no sensitive plants are known to inhabit the MA.

Management of the Area:

Fishing, hunting, camping, swimming, gold panning, whitewater rafting, and kayaking are popular recreation pursuits within this MA. Extensive gold mining took place in the past, and many gold dredging operations are still active today. These operations vary from year-round mining to dredging for summer recreation. Segments of the Trinity River are designated as Recreation and Scenic within the National Wild and Scenic Rivers System. Habitat management for the New River deer herd and threatened, endangered, and sensitive (TE&S) species is an important objective. The recreational opportunities offered in the MA include: camping, swimming, fishing, recreational gold panning, whitewater sports, and scenic viewing. A variety of facilities is developed and maintained at major access sites and use areas to adequately meet the needs of the public and maintain other resource values.

Heritage Resource - This MA is rich in historic and prehistoric cultural resources. The location, identification, and cataloging of sites and the development of interpretive displays regarding cultural resources is continuing.

Management Prescriptions

B

Table 4-18 depicts the acres of each management prescription within the management area.

Table 4-18
Management Prescriptions for Management Area 15

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	45,346
	Total	**45,346**
Administratively Withdrawn Areas		
II	Limited Roaded Motorized Rec.	938
IV	Roaded, High Density Rec.	319
XI	Heritage Resource Management	411
	Total	**1,668**
Riparian Reserves		
IX	Riparian Management	12,791
	Total	**12,791**
Adaptive Management Areas		
III	Roaded Recreation	14,597
VI	Wildlife Habitat Management	9,033
VIII	Commercial Wood Products Emphasis	3,552
	Total	**27,182**
	Grand Total	**87,986**

Desired Future Condition

C

Sixty six percent of the 87,986 acres in this management area are allocated to Late-Successional Reserve and Riparian Reserve, 32% to AMA, and 2% to Administratively Withdrawn Areas.

About two thirds of this management area is managed to maintain and enhance late-successional and "Old-Growth" forests and aquatic ecosystems within the Late-Successional and Riparian Reserve systems. Additional acres are managed for late-successional within the lands designated as AMA.

Late-Successional Reserves make the largest portion of this management area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Suitable AMA lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wildfire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable AMA lands as a by product of ecosystem management is expected to provide approximately 20 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

AMA lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 54%; Management Prescription VI, Wildlife Habitat Management about 33%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 13%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the AMA. The Trinity River is the most significant riparian area within this Management Area.

Supplemental Management Direction

D

1. Develop site-specific management plans for significant and historic homesteads in the area.
2. Upgrade the surfacing on the Forests' arterial road system.
3. Upgrade the surfacing on the Forests' campground road system.
4. Assess roaded stream crossings and upgrade where necessary to meet riparian management standards.
5. Emphasize anadromous fisheries habitat management.
6. Use National Forest lands in the Hocker Flat, Bull Gulch, and Dutch Creek areas west of Junction City and the National Forest lands west of Burnt Ranch as a land exchange base. Acquire undeveloped private lands, especially those near the Trinity River.
7. Improve trail access to the Trinity River.
8. Continue coordination of whitewater rafting activities on the Trinity River with other agencies and Forests.
9. Manage commercial rafting in Burnt Ranch and New River Gorge to provide a quality recreational experience which is compatible with the classification of that river segment.
10. Develop a management plan for the Del Loma Cave.
11. Plan and conduct management activities so that domestic water quality is maintained.
12. Acquire undeveloped parcels along the Wild and Scenic River Corridor.
13. Develop facilities to compliment river recreation activities.

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16 - Corral Bottom

County: Trinity
Ranger District: Big Bar
Elevation: 2,400 - 5,100 feet
National Forest Land: 24,522 acres

Description

A

Location:

The Corral Bottom Management Area (MA) is located in the southwest portion of the Big Bar District adjacent to the northern boundary of the Hayfork Ranger District.

Physical Environment:

The area consists of well-forested, gently-sloping lands. The primary streams in this area are Corral, Clark, and Allen Creeks. All streams flow towards the South Fork Trinity River. The area is within the Gulch and Corral Creek watersheds. The Gulch watershed has a high risk of undergoing cumulative watershed effects due to past management activities and recent wildfires. Soils in some portions of this area are extremely erodible, and there are some existing erosion problems. This area has a well-developed transportation system and includes a major power transmission corridor.

Biological Environment:

Douglas-fir is the predominant tree species; ponderosa pine, white fir, and sugar pine are also common. Many hardwood and brush species, such as tanoak, madrone, golden chinquapin, ceanothus, and manzanita are also present. This MA contains 5,500 acres of suitable timber land and a large proportion of highly productive timber land. The area has an abundance of deer, bear, and other wildlife species. The fisher and Trinity bristle snail are also found in this MA. A Late-Successional Reserve covers a major portion of this MA.

Sensitive Plants:

Little is known about this MA botanically. One sensitive plant, Howell's lewisia, probably occurs in the area. Refer to Appendix P for additional information.

Management of the Area:

Dispersed recreation activities emphasize big game hunting, woodcutting, camping and fishing. A portion of the Eltapom, Corral Creek, and Big Bar range allotments are within the boundaries of this MA. Habitat management for the Hayfork deer herd, black bear, spotted owls, Trinity bristle snail and fisher is an important resource activity. Timber harvesting is an important consideration on areas outside reserve areas.

Public Use and Resource Opportunities - The South Fork Trinity River Wild and Scenic River Plan and the Forest Plan direct management activities. Management activities are primarily directed at enhancement of anadromous fisheries and recreational opportunities.

Water quality and habitat conditions are in excellent condition for both the anadromous fishery Eltapom Creek and residential fishery Corral Creek basins.

The recreational opportunities offered in the MA include: hunting, dispersed camping, and fishing along streams and flat areas. Winter sports activities are increasing; these include snowmobiling and cross-country skiing. Some facilities are developed and maintained at major use areas to adequately meet the needs of the public.

Heritage Resource - This MA is rich in historic and prehistoric cultural resources. The location, identification, and cataloging of sites and the development of interpretive displays regarding cultural resources is continuing.

Management Prescriptions

B

Table 4-19 depicts the acres of each management prescription within the management area.

Table 4-19
Management Prescriptions for Management Area 16

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	13,715
	Total	**13,715**
Administratively Withdrawn Areas		
I	Unroaded Non-Motorized Rec.	561
	Total	**561**
Riparian Reserves		
IX	Riparian Management	3,586
	Total	**3,586**
Adaptive Management Areas		
VI	Wildlife Habitat Management	1,676
VIII	Commercial Wood Products Emphasis	4,984
	Total	**6,660**
	Grand Total	**24,522**

Desired Future Condition

C

Seventy one percent of the 24,522 acres in this management area are allocated to Late-Successional Reserves and Riparian Reserves, 27% to AMA, and 2% to Administratively Withdrawn Areas.

About three quarters of this management area is managed to maintain and enhance late-successional and "Old-Growth" forests and aquatic ecosystems within the Late-Successional and Riparian Reserve systems. Additional acres are managed for late-successional within the lands designated as AMA.

Suitable AMA lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest Stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

A sustained level of forest products from suitable AMA lands as a by product of ecosystem management is expected to provide approximately 8 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

AMA lands are further disaggregated into two management prescriptions with more specific emphasis and direction. They are: Management Prescription VI, Wildlife Habitat Management about 25%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 75% of AMA land.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the AMA lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the AMA.

Late-Successional Reserves make up the largest portion of this management area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

D

1. Protect rock outcrops from excavation until they have been surveyed for Howell's lewisia.
2. Upgrade the surfacing on the Forests' arterial road system.
3. Assess roaded stream crossings and upgrade where necessary to meet riparian management standards.
4. Maintain or improve habitat conditions for resident coldwater trout with emphasis on sediment control and cover.
5. When considering lands for acquisition, evaluate existing erosion problems and their effects on T&E&S species.
6. Develop a Coordinated Resource Management Plan between Federal agencies and private landholders to protect all resource values.

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17 - Hayfork Creek

County: Trinity
Ranger District: Hayfork
Elevation: 1,250 to 6,300 feet
National Forest Land: 36,318 acres

Description

A

Location:

The Hayfork Creek Management Area (MA) is located along the northern boundary of the Hayfork Ranger District. The western boundary is formed by the South Fork Trinity River.

Physical Environment:

The area is characterized by long, continuous, south-facing slopes broken by the many tributaries of Hayfork Creek. Side slopes of these streams are moderate to steep. Prominent landmarks are Pattison Peak, Rays Peak, and Underwood Mountain. Slope instability and highly erodible soils are management concerns in portions of this MA. The area is within the Gulch, Corral, and Lower Hayfork watersheds. The Gulch watershed was affected by wildfires of 1987 and is susceptible to cumulative watershed impacts.

Biological Environment:

Large brushfields of manzanita, chamise, other xeric shrubs, scattered knobcone pine, and gray pine dominate much of the area. Mixed conifer forests are found on north-facing slopes, at higher elevations, and in fingers and pockets along streamcourses and bench areas. This MA contains 6,400 acres of suitable timber land. A Late-Successional Reserve lies within this MA. It also contains habitat which supports deer, black bear, Trinity bristle snail, bald eagle, fisher, steelhead, and salmon.

Sensitive Plants:

Suitable habitat exists within the MA for Niles' madia, pale yellow stonecrop, and Howell's lewisia, but this habitat has not yet been surveyed botanically. Refer to Appendix P for additional information.

Management of the Area:

There are important recreational and scenic values along the South Fork Trinity River and Hayfork Creek Canyon areas. Hayfork Creek, from 9 Mile Bridge to its confluence with the South Fork Trinity River, is being proposed for inclusion in the National Wild and Scenic Rivers system. Anadromous fisheries are very important. Wildlife habitat management is also an important consideration.

Approximately 12,550 acres of wildland vegetation were burned during October, 1987. Within the burned area, the primary management emphasis is on reforestation. Concurrently, other opportunities will be explored for the long term recovery of the watersheds as well as wildlife and fisheries habitat. Special emphasis should be placed on the short term maintenance of emergency erosion control structures that were put in place after the fires were contained. Close monitoring of the burned area should provide early detection of undesirable situations. The South Fork Trinity River Wild and Scenic River Plan, Hayfork Creek Wild and Scenic River Plan and the Forest Plan direct management activities. Management activities are primarily directed at enhancement of anadromous fisheries and recreational opportunities.

Public Use and Resource Attractions -The largest portion of this MA's landscape is natural in appearance evidence of human modification or manipulation apparent within AMA areas.

Unroaded non-motorized recreation opportunities are available in the unroaded areas of this MA. Recreationists are enjoying the wild and scenic values of the South Fork Trinity River.

Heritage Resource - Archaeological sites are protected through stabilization, patrolling and limiting public access. Because the archaeological sites located in the Hyampom Valley are important in understanding early Native American and early settler use of the valley, special emphasis is placed on a long-term program of scientific research .

Management Prescriptions

B

Table 4-20 depicts the acres of each management prescription within the management area.

Table 4-20
Management Prescriptions for Management Area 17

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	3,965
	Total	**3,965**
Administratively Withdrawn Areas		
I	Unroaded Non-motorized Rec.	16,491
IV	Roaded, High Density Rec.	65
XI	Heritage Resource Management	40
	Total	**16,596**
Riparian Reserves		
IX	Riparian Management	5,673
	Total	**5,673**
Adaptive Management Areas		
III	Roaded Recreation	1,045
VI	Wildlife Habitat Management	3,665
VIII	Commercial Wood Products Emphasis	5,374
	Total	**10,084**
	Grand Total	**36,318**

Desired Future Condition

C

Forty-six percent of the 36,318 acres in this management area are allocated to Administratively Withdrawn Areas (Management Prescription I Unroaded Non-motorized Recreation), 28% to AMA, and 26% to Late-Successional Reserves and Riparian Reserves.

Half of this MA is allocated to Unroaded Recreation and is located within the Pattison Released Roadless Area. The character of the roadless area is wild, being generally primitive and undeveloped retaining a natural setting with only minor subtle modifications. Visitor use of the area continues to be occasional. Typical recreational activities within the area include hiking, cross-country skiing, horseback riding, hunting, camping and sightseeing.

Suitable AMA lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

AMA lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 10%; Management Prescription VI, Wildlife Habitat Management about 36%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 54% of AMA land.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and

shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the AMA lands. As a by product of ecosystem management, it is expected that suitable lands will yield approximately 9 million board feet per decade from this MA. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the AMA.

Late-Successional Reserves are located within the Pattison Roadless Area. The landscape of the Late-Successional Reserves appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

D

1. Protect rock outcrops from excavation until they have been surveyed for pale yellow stonecrop and Howell's lewisia.
2. Search suitable habitat for Niles' madia.
3. Establish a long-term study of the prehistoric and early historic settlement archaeological site in the Hyampom Valley. This study would include a Research Design, a data gathering phase through site testing, mitigation, and an evaluation program to determine eligibility to the National Register of Historic Places. Establish partnerships with Universities or other institutions.
4. Develop a management plan for archaeological sites that are affected by grazing, vehicular traffic, camping, and vandalism.
5. Maintain or improve selected habitat for steelhead and salmon with emphasis on spawning, rearing, and streamside cover areas, as well as barrier removal.
6. In cooperation with the DFG, develop and implement a species management plan for spring-run chinook and summer steelhead for the South Fork Trinity River.
7. Emphasize recreational and scenic values along the South Fork Trinity River and Hayfork Creek Canyon areas.
8. Develop an interpretive plan for sites in the Hyampom Valley. The plan will specify sites to be interpreted and methods of interpretation.
9. When implementing projects, recognize the potential for cumulative watershed effects, especially within the Gulch watershed.
10. Evaluate Hayfork Creek from 9-Mile Bridge to Hyampom to determine its suitability for Interim Artificial Propagation (IAP).
11. Recommend and manage Hayfork Creek, from 9-Mile Bridge to its confluence with the South Fork Trinity River, as a component of the National Wild and Scenic Rivers System.
12. Subsequent to designation by Congress, prepare a Wild and Scenic River Management Plan for National Forest lands within the Hayfork Creek corridor.
13. Assess brushfields for multi-resource management opportunities, especially to enhance wildlife forage values.

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18 - Hayfork

County: Trinity
Ranger District: Hayfork
Elevation: 1,600 to 6,275 feet
National Forest Land: 89,156 acres

Description

A

Location:

The Hayfork Management Area (MA) surrounds the Hayfork Valley and lies on both sides of the Hayfork Divide.

Physical Environment:

The area is characterized by moderate to steep slopes adjacent to tributaries of Browns Creek, Hayfork Creek, and Salt Gulch. Prominent land features include Wells Mountain, Sugarloaf Peak, Hoosimbim Mountain, Hayfork Summit, Morgan Hill, Plummer Peak, Tule Divide, Thompson Peak, Barker Mountain, and Sims Gap. An electronic site is located on Plummer Peak. The area contains the primary source of domestic water for the community of Hayfork. The area is within the Helena Creek, Browns Creek, Hayfork, Upper Hayfork, Big Creek, and Salt Creek watersheds. Portions of the area have highly erodible soils. Unique geologic features are located at the gorge in the upper portion of Browns Creek and at Natural Bridge. There has been a long history of minerals development in this MA. State Highway 3 runs through the area.

Biological Environment:

The area supports a mixed conifer forest of ponderosa pine, Douglas-fir, sugar pine, incense-cedar, white fir, and red fir. Hardwoods consist mainly of black oak, Oregon oak, live oak, and madrone. This MA contains 33,600 acres of suitable timber land. Scattered throughout the area are brushfields of manzanita, chamise, deer brush, whitethorn, and ceanothus. Important habitat for deer, black bear, goshawk, fisher, Trinity bristle snail, steelhead and salmon is found in the area. A portion of Late-Successional Reserve is located within this MA.

Sensitive Plants:

Brandegee's eriastrum, Peanut sandwort, and pale yellow stonecrop inhabit this MA. There is also suitable habitat for Niles' madia that has not yet been surveyed botanically. Refer to Appendix P for additional information.

Management of the Area:

Lands outside of Late-Successional Reserve are part of the Hayfork Adaptive Management Area (AMA). Management direction for the AMA is from specific land allocation (i.e., Riparian Reserve or Administratively Withdrawn). Management Prescription areas III, VI and VIII are managed by Matrix direction until such time that the Forest Plan is amended through the adaptive management process.

Timber and grazing are important resource management activities. Habitat management for fisheries and wildlife is also an important activity. Portions of the Salt Creek, Tule Creek, Grassy Flats, and Hayfork Divide grazing allotments are located here. Some mining takes place, and the potential exists for significant increases. State Highway 3 has been designated as a State Scenic Highway.

Approximately 5,010 acres of wildland vegetation were burned during October, 1987. Within the burned area, the primary management emphasis is on reforestation activities and other opportunities for the long term recovery of the watersheds as well as wildlife and fisheries habitat.

Interpretive recreation opportunities are available to the general public and educational institutions.

Heritage Resource - Archaeological sites are protected through stabilization, patrolling, and limiting public access. Monitoring is emphasized at sites heavily impacted by dispersed recreational activities. Research is being carried out by university archaeological departments on both prehistoric and historic cultural resources.

Special Areas:

Natural Bridge is proposed for classification as a geologic Special Interest Area (SIA).

Management Prescriptions

B

Table 4-21 depicts the acres of each management prescription within the management area.

Table 4-21
Management Prescriptions for Management Area 18

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	19,167
	Total	**19,167**
Administratively Withdrawn Areas		
X	Special Area Management	187
XI	Heritage Resource Management	179
	Total	**366**
Riparian Reserves		
IX	Riparian Management	29,316
	Total	**29,316**
Adaptive Management Areas		
III	Roaded Recreation	11,503
VI	Wildlife Habitat Management	15,675
VIII	Commercial Wood Products Emphasis	13,127
	Total	**40,305**
	Grand Total	**89,156**

Desired Future Condition

C

Fifty-four percent of the 89,156 acres in this management area are allocated to Late-Successional Reserves and Riparian Reserves, 45% to AMA, and less than 1% to Administratively Withdrawn Area.

Over half of this management area is managed to maintain and enhance late-successional and "Old-Growth" forests and aquatic ecosystems within the Late-Successional and Riparian Reserve systems. Additional acres are managed for late-successional within the lands designated as AMA.

Late-Successional Reserves are located on the north portion of the MA in the from Barker Mountain continuing over the Hayfork Divide into MA 15. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

AMA lands make up a little less than half of this MA. Suitable AMA lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserve).

A sustained level of forest products from suitable AMA lands as a by product of ecosystem management is expected to provide approximately 67 million board feet per decade in wood products.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

AMA lands are further disaggregated into three management prescriptions with more specific emphasis and

direction. They are: Management Prescription III, Roaded Recreation about 28%; Management Prescription VI, Wildlife Habitat Management about 40%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 32% of AMA land.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the AMA. Some of the most significant riparian areas within this MA are Philpot Creek, Salt Creek and Hayfork Creek.

Supplemental Management Direction

D

1. Protect rock outcrops from excavation until they have been surveyed for pale yellow stonecrop.
2. Survey suitable habitat for Niles' madia.
3. Develop an interpretive plan for the Natural Bridge Site in partnership with the Native American community.
4. Develop an interpretive plan for sites along Hayfork Creek. The Plan should specify sites to be interpreted and methods of interpretation.
5. Develop a management plan for cultural sites that are affected by grazing, vehicular traffic, camping, and vandalism.
6. Maintain or improve selected habitat for steelhead and salmon with emphasis on spawning, rearing, and streamside cover areas.
7. Recognize Public Law 167 stipulations to surface rights on mining claims located in Sections 13, 18, 19, and 24, T32N, R11 and 12W (20 acres); in Sections 21 and 28, T31N, R11W (40 acres); and in Sections 21, 28, 23, 26, T31N, R11W (160 acres).
8. Emphasize firewood availability.
9. Plan and conduct any activity in the Big Creek Watershed so that domestic water quality is protected for the community of Hayfork.

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19 - Indian Valley/Rattlesnake

County: Trinity
Ranger District: Hayfork
Elevation: 1,300 to 5,800 feet
National Forest Land: 124,356 acres

Description

A

Location:

The Indian Valley/Rattlesnake Management Area (MA) is located west and southwest of the community of Hayfork.

Physical Environment:

The area is characterized by long, broad ridges breaking into the South Fork Trinity River and Hayfork Creek. Long serpentine ridges, such as Rattlesnake and Blue Point, are also common. Other prominent features are Friend Mountain, Grassy Mountain, Copper Hill, Rattlesnake Creek, Butter Creek, and the South Fork Trinity River. Slope stability problems are common in steep canyon lands and within the lower Butter Creek, Deep Gulch, and Indian Valley Creek watersheds. Some soils with a higher risk of erodibility are found scattered within this area. This MA is within the Lower Hayfork, Butter, Plummer, Smoky, Rattlesnake, and Salt Creek watersheds. Rattlesnake Creek and Butter Creek watersheds are at risk of undergoing cumulative watershed effects primarily due to the 1987 wildfires. Unusual geologic features include the limestone outcrops of Limedyke Mountain, Marble Caves, and the limestone caves and gorge at Butter Creek.

Biological Environment:

The forested areas are composed of mixed conifers, with white and red fir growing at the higher elevations. Scattered throughout the area is Jeffrey pine, grey pine, incense-cedar, large shrubfields, and various grasses. The area includes a large amount of highly productive timber land, much of which is sparsely stocked with conifers. This MA contains 53,000 acres of suitable timber land. Habitat supporting the Hayfork deer herd, black bear, pileated woodpecker, goshawk, and spotted owls is found in the area. A portion of Late-Successional Reserve is located within this MA. Streams within the area support steelhead, salmon, and resident trout.

Sensitive Plants:

Niles' madia, pale yellow stonecrop, and Peanut sandwort inhabit this MA. The entire geographic range of Niles' madia is contained in this MA. Refer to Appendix P for additional information.

Management of the Area:

A large portion of this Management Area lies within Tier I Key Watershed. Only the Lower Hayfork Creek and Salt Creek Watershed portions of this Management Area are not Key Watershed. Key Watersheds are intended to provide high quality fish habitat. They include areas of high quality habitat as well as areas of degraded habitat. Key Watersheds with high quality conditions will serve as anchors for the potential recovery of depressed stocks. Those of lower quality habitat have a high potential for restoration and will become future sources of high quality habitat. Key Watersheds are the highest priority for watershed restoration. Any sort of vegetation management within Key Watersheds will only occur if it supports Key Watershed goals.

Recreation activities and grazing take place within this MA. Recreation opportunities are oriented to the South Fork Trinity River and are concentrated near Forest Glen. Nearly all or portions of the following grazing allotments are located here: Grassy Flats, Butter Creek, Tule Creek, and Post Creek. The South Fork Trinity River is proposed for addition to the National Wild and Scenic Rivers system. About eight miles of the South Fork National Recreation Trail (NRT) are located in this area. Habitat management for the Hayfork deer herd, black bear, and goshawks is an important consideration. Maintaining diversity is also important.

Approximately 33,235 acres of wildland vegetation were burned during September, 1987. Within the burned area, the primary management emphasis is on reforestation and restoration activities to ensure the long term recovery of the watersheds, as well as wildlife and fisheries habitat.

The Indian Valley Environmental Education Camp is providing educational opportunities for students and teachers. Here they learn about the wise use, care and responsibility of the environment and to promote a better understanding of multiple use resource management.

Heritage Resource - Archaeological sites are protected through stabilization, patrolling, and limiting public access. Monitoring is emphasized at sites heavily impacted by dispersed recreational activities. Research is being carried out by university archaeological departments on prehistoric and historic cultural resources.

Special Area:

Smoky Creek Research Natural Area (RNA) (960 acres) is recommended for establishment.

Management Prescriptions

B

Table 4-22 depicts the acres of each management prescription within the management area.

Table 4-22
Management Prescriptions for Management Area 19

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	23,379
	Total	**23,379**
Administratively Withdrawn Areas		
I	Unroaded Non-Motorized Rec.	9,260
II	Limited Roaded Motorized Rec.	557
IV	Roaded, High Density Rec.	397
X	Special Area Management	952
XI	Heritage Resource Management	246
	Total	**11,412**
Riparian Reserves		
IX	Riparian Management	36,024
	Total	**36,024**
Adaptive Management Area		
III	Roaded Recreation	9,196
VI	Wildlife Habitat Management	719
VIII	Commercial Wood Products Emphasis	14,000
	Total	**23,915**
Matrix		
III	Roaded Recreation	7,000
VI	Wildlife Habitat Management	600
VIII	Commercial Wood Products Emphasis	22,027
	Total	**29,627**
	Grand Total	**124,356**

Desired Future Condition

C

Nineteen percent of the 124,356 acres in this management area are allocated to AMA, 24% to Matrix (Key Watershed), 9% to Administratively Withdrawn Areas, and 48% to Late-Successional Reserves and Riparian Reserves.

Nearly half of this MA is allocated to Late-Successional Reserves and Unroaded Recreation (South Fork Trinity Wild And Scenic River. The character of the Wild segment of the River is wild, being generally primitive and undeveloped retaining a natural setting with only minor subtle modifications. Visitor use of the area continues to be occassional. Typical recreational activities within the area include hiking, cross-country skiing, horseback riding, hunting, camping and sightseeing

The western portion of this MA is identified as Tier 1 Key Watershed. Activities have been implemented since the mid-1990's to restore and protect watershed health and water quality particularly for anadromous fish habitat. Within Key Watershed, watershed conditions are improved through watershed restoration activities including riparian improvement projects, road maintenance, fish habitat improvement, and road obliteration. Forest health is maintained and fire risk reduced through vegetative manipulation and underburning.

The South Fork of the Trinity River, Hayfork, Butter, Rusch, Bear Wallow, Little Bear Wallow, Plummer, Rattlesnake, and Smoky Creeks are capable of supporting sustainable anadromous fish populations. Cumulative watershed effects have been reduced through management activities such as road obliteration and restoration.

Late-Successional Reserves are located along the South Fork Trinity River on generally high site capability lands. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Large areas burned by wildfires during the 1980's are reestablished with early seral stage vegetation including young sapling to pole sized conifers and hardwood trees where stands were replanted. Where the forest was not replanted in the South Fork Released Roadless Area the forest appears as scattered older residual trees with understory shrubs and occassional scattered young conifer and hardwood seedlings and saplings size trees. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at considerably higher levels than within the AMA/Matrix. Many patches of dead trees and snags

10 acres or less are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Suitable AMA/Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of all stands, when regenerated, are retained and managed to maintain or produce dispersed pockets of late-successional forests across the landscape. Regenerated stands or artificially created openings appear more natural in appearance than past stands due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development consistent with higher level direction. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

As a by product of ecosystem management it is expected that suitable lands will yield approximately 72 million boardfeet per decade of commercial wood fiber including biomass from this MA.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

AMA/Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 29%; Management Prescription VI, Wildlife Habitat Management about 2%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 69% of AMA/Matrix land.

Management Prescription III areas are located around high use recreation areas and travel corridors primarily areas along the Hayfork Creek Road #301 and Highway Route 36. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species, such as black bear, deer and gray squirrel. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types and Chaparral.

Management Prescription VIII areas emphasize optimum timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the AMA/Matrix lands, although yields from these lands are lower than biological potential. The forest is more single storied, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian areas are reserve zones applied along both sides of rivers, streams, lakes and wetlands. Riparian areas appear as unmanaged fingers and corridors dissecting about 40% of the AMA/Matrix lands, but not as evident within other land allocations such as Late-Successional Reserves.

Supplemental Management Direction

D

1. Survey suitable habitat for additional populations of Niles' madia.
2. Protect rock outcrops from excavation until they have been surveyed for pale yellow stonecrop.
3. Protect the type localities of Niles' madia and pale yellow stonecrop for their scientific value.
4. Develop a management plan for archaeological sites that are effected by grazing, vehicular traffic, erosion, camping, and vandalism.

5. Maintain or improve selected habitat for steelhead and salmon with emphasis on spawning, rearing, and streamside cover areas, along with sediment control.
6. Develop a site plan for the Scott Flat Trailhead on the South Fork (NRT).
7. Establish an interpretive plan for sites in Indian Valley. The plan will specify sites to be interpreted and methods of interpretation. Adapt the interpretive plan to the interest of young children who will be attending the Environmental Education Camp at Indian Valley.
8. Maintain Dubakella Mountain in its present condition pending evaluation as a Special Interest Area.
9. Rehabilitate poorly or sparsely-stocked suitable timber land.
10. When implementing projects, recognize the potential for mass wasting and severe watershed damage. This is particularly true in the inner gorges along the South Fork Trinity River.
11. Identify watershed and fisheries improvement opportunities within the Rattlesnake Creek watershed.
12. When planning projects, recognize the potential for cumulative watershed effects, especially within the Rattlesnake Creek and Butter Creek watersheds.
13. Subsequent to designation by Congress, prepare and revise a Wild and Scenic River Management Plan for National Forest lands within the additional proposed corridors of the South Fork Trinity River.

20 - South Fork Mountain

Counties: Trinity/Humboldt
Ranger Districts: Hayfork/Yolla Bolla
Elevation: 1,200 to 6,070 feet
National Forest Land: 79,994 acres

Description

A

Location:

The South Fork Mountain Management Area (MA) is located along the western boundary of the Trinity National Forest. It is bordered on the west by the Six Rivers National Forest.

Physical Environment:

This MA is moderate to steep and contains some lands which are highly unstable. The area is drained by the South Fork Trinity River and its tributaries. The primary focal points are South Fork Mountain and the South Fork Trinity River. (South Fork Mountain is reported to be the longest continuous ridge in the world). The area is within the Hyampom, Hidden Valley, Happy Camp, and Upper South Fork Trinity watersheds. The Hyampom watershed has a risk of undergoing cumulative watershed effects due to past human activities and natural processes such as the wildfires of 1987. Archaeological features, which have been nominated to the National Register of Historic Places, are concentrated in the Blake Mountain area. The South Fork Mountain area includes some of the most important arch aeological resources identified on the Trinity Forest.

Biological Environment:

This area contains some of the heaviest concentrations of late-successional stands on the Shasta-Trinity National Forests. Mixed conifers, Douglas-fir, and red fir are the predominant species. The lower slopes support large areas of hardwoods, mainly tanoak, chinquapin, and madrone. This MA contains 11,600 acres of suitable timber land and a large proportion of highly productive timber land. The late-successional timber stands support populations of spotted owls and other species dependent on this type of habitat. Late-Successional Reserve covers a large portion of this MA. The South Fork Trinity River supports an anadromous fishery. This area provides summer range for the Hayfork deer herd.

Sensitive Plants:

Two sensitive plants are known from this MA: Umpqua green gentian and pale yellow stonecrop. A unique set of edaphic features has resulted in a high level of botanical diversity along the east side of South Fork Mountain, about which little is known. These meadow habitats and surrounding plant communities may contain unique botanical components which are not presently known. Refer to Appendix P for additional information.

Management of the Area:

A portion of this Management area lies within Tier 1 Key Watershed. Key Watersheds are intended to provide high quality fish habitat. They include areas of high quality habitat as well as areas of degraded habitat. Key Watersheds with high quality conditions will serve as anchors for the potential recovery of depressed stocks. Those of lower quality habitat have a high potential for restoration and will become future sources of high quality habitat. Key Watersheds are the highest priority for watershed restoration. Any sort of vegetation management within Key Watersheds will only occur if it supports Key Watershed goals.

This MA is highly suitable for timber, range, wildlife, and dispersed and developed recreation activities. The area contains all or part of three grazing allotments. There are 12 recreation residences under special use permit. Portions of the South Fork Trinity River, downstream from Forest Glen, are Wild, Scenic, and Recreation components of the National Wild and Scenic Rivers system. From Forest Glen upstream, an additional 25 miles of the South Fork Trinity River have been inventoried and proposed as an addition to the National Wild and Scenic Rivers system. Almost all of this mileage lies within the geologically unstable inner gorge.

The South Fork Trinity River north of Forest Glen and within this MA is designated as a Wild and Scenic River and management plans are in place. Recreationists are enjoying dispersed and developed activities such as hiking, fishing, camping and wildlife viewing.

Approximately 4,450 acres of wildland vegetation were burned during October, 1987. Within the burned area, the primary management emphasis is on reforestation activities and the long term maintenance and recovery of the watersheds and habitat.

Anadromous fisheries habitat can sustain native fisheries runs year-round. Neotropical migratory birds are normally found within the river zone.

Heritage Resource - Archaeological sites are protected through stabilization, patrolling, and limiting public access. Monitoring is emphasized at sites heavily impacted by dispersed recreational activities. Research is being carried out by university archaeological departments on both prehistoric and historic cultural resources.

Special Areas:

Rough Gulch (3,960 acres) is being proposed for Research Natural Area (RNA) designation.

Management Prescriptions

B

Table 4-23 depicts the acres of each management prescription within the management area.

Table 4-23
Management Prescriptions for Management Area 20

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	45,927
	Total	**45,927**
Administratively Withdrawn Areas		
I	Unroaded Non-Motorized Rec.	2,597
II	Limited Roaded Motorized Rec.	5,726
IV	Roaded, High Density Rec.	40
X	Special Area Management	4,192
XI	Heritage Resource Management	275
	Total	**12,830**
Riparian Reserves		
IX	Riparian Management	7,433
	Total	**7,433**
Adaptive Management Area		
III	Roaded Recreation	983
VIII	Commercial Wood Products Emphasis	4,500
	Total	**5,483**
Matrix		
III	Roaded Recreation	400
VI	Wildlife Habitat Management	2,316
VIII	Commercial Wood Products Emphasis	5,605
	Total	8,321
	Grand Total	**79,994**

Desired Future Condition

C

Seven percent of the 79,994 acres in this management area are allocated to AMA, 10% to Matrix (Key Watershed), 16% to Administratively Withdrawn Areas, and 67% to Late-Successional Reserves and Riparian Reserves.

Over two thirds of this MA is allocated to Late-Successional Reserves and Unroaded Recreation .

A portion of this MA is identified as Tier 1 Key Watershed. Activities have been implemented since the mid-1990's to restore and protect watershed health and water quality particularly for anadromous fish habitat. Within Key Watershed, watershed conditions are improved through watershed restoration activities including riparian improvement projects, road maintenance, fish habitat improvement, and road obliteration. Forest health is maintained and fire risk reduced through vegetative manipulation and underburning.

Most of South Fork Ridge from Pelletreau Ridge to Horsehead Ridge is allocated to Late-Successional Reserve. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Large areas burned by wildfires during the 1980's are reestablished with early seral stage vegetation including young sapling to pole sized conifers and hardwood trees where stands were replanted. Where the forest was not replanted in the South Fork Released Roadless Area the forest appears as scattered older residual trees with understory shrubs and occasional scattered young conifer and hardwood seedlings and saplings size trees. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at considerably higher levels than within the AMA/Matrix. Many patches of dead trees and snags 10 acres or less are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Suitable AMA/Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of all stands, when regenerated, are retained and managed to maintain or produce dispersed pockets of late-successional forests across the landscape. Regenerated stands or artificially created openings appear more natural in appearance than past stands due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural

role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development consistent with higher level direction. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

As a by product of ecosystem management it is expected that suitable lands will yield approximately 18 million board feet per decade of commercial wood fiber including biomass from this MA.

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;
3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and
4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

AMA/Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 10%; Management Prescription VI, Wildlife Habitat Management about 17%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 73% of AMA/Matrix land.

Management Prescription III areas are located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species, such as black bear, deer and gray squirrel. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types and Chaparral.

Management Prescription VIII areas emphasize optimum timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the AMA/Matrix lands, although yields from these lands are lower than biological potential. The forest is more single storied, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian areas are reserve zones applied along both sides of rivers, streams, lakes and wetlands. Riparian areas appear as unmanaged fingers and corridors dissecting about 40% of the AMA/Matrix lands, but not as evident within other land allocations such as Late-Successional Reserves.

Supplemental Management Direction

D

1. Maintain an active program of site protection and monitoring to preserve archaeological and scientific values along the crest of South Fork Mountain.
2. Establish a long term study of the prehistoric and early historic settlement sites along South Fork Mountain. This study would include a research design, a data gathering phase through site testing and mitigation, and an evaluation program to determine the sites' eligibility for the National Register of Historic Places. Establish partnerships with Universities or other institutions.
3. Develop a management plan for cultural sites that are effected by grazing, vehicular traffic, camping, and vandalism.
4. Maintain or improve selected habitat for steelhead and salmon with emphasis on spawning, rearing, and streamside cover areas.
5. In cooperation with the DFG, develop and implement a species management plan for spring-run chinook and summer steelhead for the South Fork Trinity River.
6. Do not acquire the lands known as the "University Hill Property" in the northern portion of this MA.
7. Continue to enforce anti-cultivation laws.
8. Develop an interpretive plan for the Historic Forest Glen Guard Station. The plan would specify methods for interpreting the station.

9. Evaluate the meadow areas on the east side to determine if cattle grazing is resulting in decreased biodiversity and degradation of plant communities. Implement mitigation efforts if necessary.

10. Within riparian areas of the South Fork Trinity River consider the following:

    a. Encourage camping and other dispersed recreation activities that are compatible with the National Wild and Scenic Rivers classifications and Aquatic Conservation Strategy.

    b. Maintain existing foot trails to levels commensurate with public use and resource protection. To minimize poaching, avoid building access trails that lead to spring-run chinook holding habitats.

    c. Request that the Bureau of Land Management (BLM) withdraw these areas from mineral prospecting and development.

    d. Control wildfires using fire suppression methods which have the least impact on soils, water, and vegetation. Hand-tool fireline construction will be used unless a large fire potential dictates other methods.

11. When implementing land management activities, recognize the potential for mass wasting and severe watershed damage. This is particularly true in the inner gorges along the South Fork Trinity River.

12. Maintain or enhance the water quality of tributaries of the South Fork Trinity River.

13. Subsequent to designation by Congress, prepare and revise, as appropriate, a Wild and Scenic River Management Plan for National Forest lands within the proposed corridors of the South Fork Trinity River.

21 - Wildwood

County: Trinity
Ranger District: Yolla Bolla
Elevation: 3,100 to 5,500 feet
National Forest Land: 65,746 acres

Description

A

Location:

The Wildwood Management Area (MA) is partially located along the northwestern edge of the Yolla Bolla District. It also lies north of and adjacent to the South Fork Trinity River. State Highway 36 traverses the northern portion of the area.

Physical Environment:

Topography is variable with steep, unstable areas along the South Fork Trinity River and its tributaries. More gentle slopes lie above these areas. One of the focal points in this area is the South Fork Trinity River. The area is within the Smoky, East Fork of the South Fork Trinity River, Upper South Fork Trinity, Upper Hayfork, and Browns Creek watersheds. Upper Hayfork Creek and the East Fork of the South Fork Trinity River are at risk of undergoing cumulative watershed effects due to past human activities and natural processes. Soils having higher erodibility risks are found scattered in this area. Highly serpentinized soil types and some south slopes are either noncommercial forest lands or marginally suitable lands. Archaeological sites are scattered throughout the MA. Hall City Cave, an interesting geologic area, is located within this MA.

Biological Environment:

The area supports stands of commercial, mixed conifer timber. Vegetative types are extremely variable. The coastal Douglas-fir type can be found along the South Fork Trinity River. This MA contains 23,432 acres of suitable timber land and a large proportion of highly productive land. Browns Creek is one of the most important tributaries of the Trinity River system for anadromous fish. Deer habitat in the area is good. Road and trail access provides spectacular views of the river and surrounding environment. Portions of Late-Successional Reserves are located within this MA.

Sensitive Plants:

This MA is the center of distribution for Peanut sandwort and Stebbins' madia; both are serpentine endemics. Refer to Appendix P for additional information.

Management of the Area:

A portion of this Management area lies within Tier 1 Key Watershed. Key Watersheds are intended to provide high quality fish habitat. They include areas of high quality habitat as well as areas of degraded habitat. Key Watersheds with high quality conditions will serve as anchors for the potential recovery of depressed stocks. Those of lower quality habitat have a high potential for restoration and will become future sources of high quality habitat. Key Watersheds are the highest priority for watershed restoration. Any sort of vegetation management within Key Watersheds will only occur if it supports Key Watershed goals.

This MA is generally suitable for timber production. The privately owned Deerlick Springs Resort lies along Browns Creek and has provided mineral springs for bathing and drinking since the 1870s. The main lodge was gutted by fire in early 1989; however, the owner intends to rebuild it. The government-owned Deerlick Springs Campground lies adjacent to the resort. All or a portion of two grazing allotments are located within this MA. The South Fork is proposed as an addition to the National Wild and Scenic Rivers System. Habitat management for the Hayfork and Yolla Bolla deer herds, black bear, and anadromous fisheries is an important resource activity.

Heritage Resource - The heritage resource program provides a support service to activities such as timber management and increased minerals development. An interpretive program has been developed to depict both prehistoric and historic use of the area.

Special Areas:

A western azalea community, located along Bramlet Road, is recommended for designation as a botanical Special Interest Area (SIA).

Management Prescriptions

B

Table 4-24 depicts the acres of each management prescription within the management area.

Table 4-24
Management Prescriptions for Management Area 21

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	22,562
	Total	**22,562**
Administratively Withdrawn Areas		
I	Unroaded Non-Motorized Rec.	2,073
II	Limited Roaded Motorized Rec.	268
IV	Roaded, High Density Rec.	369
X	Special Area Management	51
XI	Heritage Resource Management	110
	Total	**2,871**
Riparian Reserves		
IX	Riparian Management	14,646
	Total	**14,646**
Adaptive Management Area		
III	Roaded Recreation	161
VI	Wildlife Habitat Management	2,604
VIII	Commercial Wood Products Emphasis	7,000
	Total	**9,765**
Matrix		
VIII	Commercial Wood Products Emphasis	15,902
	Total	**15,902**
	Grand Total	**65,746**

Desired Future Condition

C

Fifteen percent of the 65,746 acres in this management area are allocated to AMA, 24% to Matrix (Key Watershed), 4% to Administratively Withdrawn Areas, and 57% to Late-Successional Reserves and Riparian Reserves.

Over half of this MA is allocated to Late-Successional Reserves and Unroaded Recreation.

The south western portion of this MA is identified as Tier 1 Key Watershed. Activities have been implemented since the mid-1990's to restore and protect watershed health and water quality particularly for anadromous fish habitat. Within Key Watershed, watershed conditions are improved through watershed restoration activities including riparian improvement projects, road maintenance, fish habitat improvement, and road obliteration. Forest health is maintained and fire risk reduced through vegetative manipulation and underburning.

Most of this MA north of Little Black Rock to the Chanchelulla Wilderness Area is allocated to Late-Successional Reserve. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at considerably higher levels than within the AMA/Matrix. Many patches of dead trees and snags 10 acres or less are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Suitable AMA/Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of all stands, when regenerated, are retained and managed to maintain or produce dispersed pockets of late-successional forests across the landscape. Regenerated stands or artificially created openings appear more natural in appearance than past stands due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development consistent with higher level direction. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;

3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and

4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

AMA/Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 29%; Management Prescription VI, Wildlife Habitat Management about 2%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 69% of AMA/Matrix land.

Management Prescription III areas are located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species, such as black bear, deer and gray squirrel. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types and chaparral.

Management Prescription VIII areas emphasize optimum timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the AMA/Matrix lands, although yields from these lands are lower than biological potential. As a by product of ecosystem management, it is expected that wood fiber yields from this MA will average about 31 million board feet per decade. The forest is more single storied, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian areas are reserve zones applied along both sides of rivers, streams, lakes and wetlands. Riparian areas appear as unmanaged fingers and corridors dissecting about 40% of the AMA/Matrix lands, but not as evident within other land allocations such as Late-Successional Reserves.

Supplemental Management Direction

D

1. Maintain an active program of site protection and monitoring to preserve archaeological and scientific values at sites determined eligible for the National Register of Historic Places.

2. Establish a long term study of the prehistoric and early historic sites along the East Fork and South Fork Trinity River. This study would include a research design, a data gathering phase through site testing and mitigation, and an evaluation program to determine the sites' eligibility for the National Register of Historic Places. Establish partnerships with Universities or other institutions.

3. Dêvelop a management plan for cultural sites that are affected by grazing, vehicular traffic, camping, and vandalism.

4. In cooperation with the California Department of Fish and Game (DFG), develop and implement special management schedules for spring-run chinook and summer steelhead for the South Fork Trinity River.

5. Maintain the Browns Creek fish habitat improvement structures.

6. Exchange out of the Deerlick Springs area.

7. Continue to enforce anti-cultivation laws.

8. Provide greater educational opportunities for the public.

9. Within riparian areas of the South Fork Trinity River consider the following:

   a. Encourage camping and other dispersed recreation activities that are compatible with the proposed National Wild and Scenic Rivers classifications and the Aquatic Conservation Strategy.

   b. Maintain existing foot trails to levels commensurate with public use and resource protection. To minimize poaching, avoid building access trails that lead to spring-run chinook holding habitats.

   c. Request that the Bureau of Land Management (BLM) withdraw these areas from mineral prospecting and development.

   d. Control wildfires using fire suppression methods which have the least impact on soils, water, and vegetation. Hand-tool fireline construction will be used unless a large fire potential dictates other methods.

10. When implementing land management activities, recognize the potential for mass wasting and severe watershed damage. This is particularly true in the inner gorges along the East Fork and South Fork Trinity River.
11. Maintain or enhance the water quality of tributaries of the South Fork Trinity River and Hayfork and Browns Creek.
12. Subsequent to designation by Congress, prepare a Wild and Scenic River Management Plan for National Forest lands within the proposed corridors of the South Fork Trinity River.

22 - Beegum

Counties: Shasta/Tehama
Ranger District: Yolla Bolla
Elevation: 2,000 to 6,000 feet
National Forest Land: 75,579 acres

Description

A

Location:

The Beegum Management Area (MA) lies east of the Yolla Bolla Ranger District.

Physical Environment:

This MA is characterized by steep, rugged terrain at the lower elevations breaking off into more gentle terrain at the higher levels. One of its most prominent features is Beegum Gorge. The Gorge lies along the Middle and South Forks of Beegum Creek. The area is within the Beegum, South Fork Cottonwood, and the Middle Fork Cottonwood Creek watersheds. Highly serpentinized soil types and most south slopes are either non-commercial forest lands or marginally suitable lands. Archaeological sites are located throughout the MA. Chromium ore was mined from the Gorge in the 1930s and 1940s. Much evidence of this activity remains in the form of tailing piles, old jeep roads, buildings, and abandoned mining equipment. Wells Creek Falls, an impressive geologic area, is located in this MA. State Highway 36 traverses the area. The old, privately owned Midas Mine, one of the largest in California until the early 1900s, is within the area.

Biological Environment:

Vegetation varies from chaparral at the lower elevations to mixed conifer at higher levels. This MA contains 18,568 acres of suitable timber land. Angling success in the Beegum Creek area is good. Much of the area is very good transitional range for deer. Hunter success is high. Portions of the MA provide foraging habitat for peregrine falcon and golden eagle. A portion of Late-Successional Reserve is located within this MA.

Sensitive Plants:

This MA is rich in botanical diversity because of the vast amount of serpentinized soils. Two sensitive plants inhabit the area: Howell's linanthus and Stebbins' madia. The entire geographic range of Howell's linanthus is contained in this MA. Refer to Appendix P for additional information.

Management of the Area:

The area is well roaded, and this contributes to a variety of resource management opportunities. Timber production and wildlife (deer habitat) management are emphasized. There are two grazing allotments within this MA. There has been recent renewed interest in mining.

A small portion of Beegum Creek, from Beegum Gorge Campground to the Forest Boundary, is being proposed for inclusion in the National Wild and Scenic Rivers System.

Through an interpretive/educational program, these activities are compatible with travelers and recreationists using the Highway 36 Scenic Byway and other portions of this MA. The Cultural Resource Interpretive Center, located at the historic CCC era compound at Harrison Gulch, presents the tourist with a picture of the past. The Center displays prehistory, early travel routes, settlement, early mining and cattle grazing, historic lookouts, and the development of the district as a whole.

Cooperative law enforcement and fire prevention programs provide for protection of forest visitors and resources. Fire suppression programs provide for rapid initial attack deployment of resources, resulting in minimal acreage lost. The fuels management program provides for fuel reduction through utilization and natural fuels reduction.

Special Area:

Tedoc Mountain is recommended for designation as a botanical Special Interest Area (SIA).

Management Prescriptions

B

Table 4-25 depicts the acres of each management prescription within the management area.

Table 4-25
Management Prescriptions for Management Area 22

Number	Name	Acres
Late-Successional Reserves		
VII	Late-Successional Reserves and Threatened, Endangered and Selected Sensitive Species	7,987
	Total	**7,987**
Administratively Withdrawn Areas		
I	Unroaded Non-Motorized Rec.	12,459
IV	Roaded, High Density Rec.	406
X	Special Area Management	687
XI	Heritage Resource Management	11
	Total	**13,563**
Riparian Reserves		
IX	Riparian Management	21,234
	Total	**21,234**
Adaptive Management Area		
III	Roaded Recreation	5,737
VI	Wildlife Habitat Management	5,000
VIII	Commercial Wood Products Emphasis	6,550
	Total	**17,287**
Matrix		
III	Roaded Recreation	600
VI	Wildlife Habitat Management	9,238
VIII	Commercial Wood Products Emphasis	5,631
	Total	**15,469**
	Grand Total	**75,579**

Desired Future Condition

C

Forty-four percent of the 75,579 acres in this management area are allocated to AMA/Matrix, 11% to Late-Successional Reserves, 28% to Riparian Reserves, and 17% to Administratively Withdrawn Areas.

Over one third of this management area is managed to maintain and enhance late-successional and "Old-Growth" forests and aquatic ecosystems within the Late-Successional and Riparian Reserve systems. Additional acres are managed for late-successional within the lands designated as AMA and Matrix.

This MA contains a high degree of ecological diversity as a result of land capability and management activities. About two thirds of this MA is located in the front zone or the interface between the Sacramento Valley and the east side of the Klamath Mountain Physiographic Province. This zone is comprised of barren lands, oak stands, gray pine stands, commercial conifer stands and a mosaic of chaparral brushfields in various stages of seral stage development. This is as a result of intensive deer habitat improvement and fuels reduction activities taking place in cooperation with adjacent land owners.

Through habitat manipulation of chaparral vegetation this area is able to support a variety of wildlife populations. Deer, neotropical migratory birds, carnivorous species such as the mountain lion, bobcat and coyote, and other species such as rabbits, ground squirrels and reptiles survive here. Foraging habitat is also improved for such species as the peregrine falcon, bald eagle, golden eagle and other raptors. Along the interface with conifer stands, black bear habitat is also provided. This habitat manipulation greatly reduces the potential for catastrophic wildfires.

Through an integrated effort, meadows and riparian areas are enhanced and grazing allotment plans have been updated so that grazing is compatible with these fragile ecosystems.

Suitable AMA/Matrix lands are managed on a sustained yield basis with stands ranging generally from 5 to 40 acres in size. Forest stands range from tree seedling to mature forests, while maintaining some structural diversity. Fifteen percent of each regenerated stand is retained and managed to maintain or provide dispersed pockets of late-successional forests across the landscape. Regenerated stands appear more natural than in the past due to the retention of larger trees and snags.

Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of fire, insects and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wildfire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives (i.e., Stand densities are maintained at lower levels to grow larger old trees within Late-Successional Reserves).

Dispersion habitat requirements for the northern spotted owl/late-successional dependent species are met by a combination of:

1. Riparian Reserves;
2. Fifteen percent Old-Growth over entire watershed and within units;

3. Half of all regenerated stands over time will be 50-60 years old, which on average or better sites results in stands of conifers that will provide for dispersion habitat; and

4. Over the life of the plan, a substantial portion of the untreated landscape meets dispersion requirements.

While 50-11-40 is no longer a requirement under the ROD, it will usually be met, due to the above.

Matrix lands are further disaggregated into three management prescriptions with more specific emphasis and direction. They are: Management Prescription III, Roaded Recreation about 4%; Management Prescription VI, Wildlife Habitat Management about 60%; and Management Prescription VIII, and Commercial Wood Products Emphasis about 36%.

Management Prescription III areas are often located around high use recreation areas and travel corridors. Management activities are evident but subordinate to the viewer within this area.

Management Prescription VI areas emphasize habitat management for early and mid-level seral stage dependent species. Forest stands in wildlife emphasis areas are managed to maintain lower tree stocking levels and greater amounts of understory cover/forage ratios. The landscape within this area is openings of early seral stage plants and trees to open mature stands often containing multiple understory layers of trees and shrubs. This prescription area includes many areas of hardwood types.

Management Prescription VIII areas emphasize timber growth and yield. Commercial Wood Products Emphasis provide the highest level of outputs of the Matrix lands. As a by product of ecosystem management, it is expected that wood fiber yields from this MA will average about 20 million board feet per decade. The forest is more even aged, with ingrowth and understory vegetation treatment to enhance timber stand growth and yield, improve forest stand health and forest protection from stand destroying wildfires.

Riparian Reserves are applied along both sides of rivers, streams, lakes and wetlands. Riparian Reserves appear as natural corridors throughout the Matrix.

Late-Successional Reserves are located in the Murphy Glade and Goods Mountain areas of the this management area. The landscape of the Late-Successional Reserve appears natural with much of the area in late-successional forest vegetation. Late-successional forest stands are managed to maintain health and diversity components through the use of prescribed fire and thinning from below. Dead and dying trees and snags are at higher levels than within the Matrix. Patches of dead trees and snags are scattered across the landscape. Younger to mature forest stands are managed to replace older dead and dying stands as they no longer are suitable for Old-Growth ecosystem dependent organisms. Late-successional stands contain large numbers of "Old-Growth" trees with large branching, flattened or dead tops, and high levels of decadence. These older stands are structurally diverse often being multiple-storied.

Supplemental Management Direction

D

1. Protect the type locality of Howell's linanthus for its scientific value, and conduct a thorough survey of suitable habitat. Coordinate with the BLM if the plant is found on adjacent BLM land.

2. Maintain an active program of site protection, monitoring, and interpretation to preserve archaeological and scientific values for sites determined eligible for the National Register of Historic Places.

3. Develop an interpretive plan for the historic Harrison Gulch Ranger Station and the surrounding early mining communities.

4. Develop a management plan for cultural sites that are affected by grazing, vehicular traffic, camping, and vandalism.

5. Work with Shasta County to upgrade the Harrison Gulch Road and make it more suitable for commercial haul traffic.

6. Continue to enforce anti-cultivation laws.

7. Continue to work with private landowners to identify and correct sediment-producing land practices.

8. Maintain the Wells Creek Falls area in its current condition pending evaluation as a SIA.

9. Consider a suitable chamise chaparral Research Natural Area candidate.

10. When implementing land management activities, recognize the potential for mass wasting and watershed affects.

11. Maintain or enhance the water quality of tributaries in Cottonwood Creek.

12. Subsequent to designation by Congress, prepare a Wild and Scenic River Management Plan for National Forest lands within the proposed corridors of Beegum Creek.

13. Continue the cooperative program with other Federal and State agencies and private landowners in maintaining high quality winter range for a variety of wildlife species.

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Chapter 5

Monitoring and Evaluation Requirements

Chapter Contents

Chapter 5 - Monitoring and Evaluation Requirements

CHAPTER 5
Monitoring and Evaluation Requirements

Introduction
A

This Plan provides long-range management direction for the Shasta-Trinity National Forests. As previously stated, the plan implementation process establishes the framework for translating management direction into goals and objectives for specific on-the-ground projects.

Monitoring and evaluating the implementation process, effects, and outputs will determine how well the Forest Plan objectives are being met and how closely standards and guidelines are being followed. This chapter establishes the monitoring framework (refer to **Table 5-I**).

Additional guidance concerning monitoring is found in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (ROD). This Forest Plan may be amended as additional monitoring direction is developed by the Research and Monitoring Committee at the Regional Ecosystem Office (REO) that was established as a staff group by the ROD to oversee its implementation.

Monitoring System
B

Monitoring Units. Information obtained through the monitoring and evaluation system can be reported for several different geographic units. These units may include management areas, third-order watersheds, or the Forest as a whole.

Management areas provide continuity within the Forest Plan. They are contiguous units of land with separate distinct management direction in response to localized issues and resource opportunities. In contrast, watersheds are physiographic units with particular environmental attributes which can be sensitive to some Forest management practices.

For an overall means of tracking the implementation of the Forest Plan, all information will be aggregated at the Forest level. Other units of land, such as Ranger Districts, may be used from time to time for monitoring and evaluating various aspects of the Plan.

Monitoring Levels. Three levels of monitoring will be used to track implementation of the Forest Plan. These levels are listed below:

1. Project Environmental Analysis;
2. Forest-wide Multiple Resource Assessment; and
3. Single Resource/Forest Program Assessment.

Each level consists of two components: data acquisition and administrative review. Data acquisition refers to the collection and processing of environmental data. Administrative review refers to program analysis after the information has been evaluated and compared with Forest Plan objectives, standards, and guidelines.

The Forest-wide data base will be updated periodically. Each of the above levels will contribute to the process, but project level assessments will be the most often used means of insuring that District level information is incorporated into the broader Forest data base.

Project Environmental Analysis. Environmental analyses, associated with project development, involve collection and analysis of highly-detailed, site-specific data. Typically, this kind of assessment yields information on water quality, slope stability, vegetative cover, and soil condition. This information is collected using field survey and inventory techniques.

The information presented in the environmental analysis will be compared with the existing data base for analysis and updating, if necessary. This information will also be compared to management areas to verify assigned prescriptions, projected outputs, and objectives of the Forest Plan.

Monitoring and evaluation, using project environmental analyses, is not expected to be applied evenly throughout the entire Forests. However, it will be an on-going process where the majority of activities occur. Additionally, this type of monitoring will be used to check for trends of environmental improvement/degradation and attainment/non-attainment of Forest objectives. Significant changes may trigger an administrative review and re-evaluation of the Forest Plan.

Forest-wide Multiple Resource Assessment. A second monitoring level would involve Forest-wide multiple resource data acquired through remote sensing and field survey techniques. The level of detail will vary depending on the kind(s) of remote sensing data used and the type(s) of analysis techniques applied. Major types of information generated by this type of monitoring will be related to vegetative cover type, e.g., timber strata, vegetative diversity, fire management, and watershed conditions. Forest-wide multiple resource assessments will be used to update the existing data base and for comparison with the objectives contained in the Forest Plan.

The administrative review process for this monitoring level provides an extremely important check on management practices which may result in environmental changes through long-term cumulative impacts. Where the project level assessment provides a highly detailed and specific perspective, the Forest-wide assessment provides the "big picture" of cumulative and interrelated effects of management.

Single Resource--Forest Program Assessment. The final level identified in the monitoring and evaluation framework is a Forest-wide assessment of single resources and Forest programs. Neither of these elements is adequately addressed by the previous two levels, primarily due to limitations in coverage, resolution, and cost. For example, single resources, such as bald eagle habitat or anadromous fisheries, are site-specific, but they may not coincide with project environmental assessments. The Forest-wide scheme may not provide the necessary resolution and detail to adequately monitor these resources.

However, intensive field surveys, high resolution remote sensing data, or a combination of both, provides the necessary framework for monitoring single resources and Forest programs. As in the other two levels, information obtained in these assessments will be used for updating the existing data base and comparing results with Forest objectives.

The administrative review process for monitoring single resources and Forest programs includes individual implementation plans in addition to Forest Plan objectives. Implementation plans (e.g., Fire Management Plan, Five-year Timber Sale Action Plan) display the desired results in greater detail, and are typically short-range in comparison with the Forest Plan. Implementation plans are necessary intermediate planning links between the long-range Forest Plan and project planning.

Precision and Reliability. Precision is the exactness or accuracy of measurement. Reliability or validity is the expected probability that information acquired through sampling will reflect actual conditions. (see shaded area below).

When appropriate, statistical methods will be used to determine the minimum sample size required to insure that selected precision/ reliability levels are met. Accuracy limits will usually not be established for general monitoring actions such as activity reviews or General Management Reviews.

Targets, such as thousand board feet (MBF) or animal month (AM) goals, which have a 100 percent sample, normally have a high level of precision and reliability. Other targets, such as vegetation trends and population levels, may have a moderate or low level of precision, if the accuracy of the initial data base elements and form of measurement are not very high.

Evaluation Reports

C

The Forest Supervisor, Staff Officers, and District Rangers will monitor the activities listed in **Table 5-I.**

Evaluation reports will be prepared periodically for all resources, programs, and management practices identified in the Monitoring Action Plan (**Table 5-I**). The reports will contain, as a minimum, the following elements:

- A quantitative estimate of performance, comparing outputs and services with those projected by the Forest Plan;
- Documentation of measured effects, including any change in productivity of the land;

Ranges of Precision and Reliability Used in the Monitoring Plan Include:

Level of Precision/Reliability	Accuracy Limits
High	maximum measurement of ± 10% of the sample mean
Moderate	maximum measurement of ± 33% of the sample mean
Low	maximum measurement of ± 50% of the sample mean
N/A	accuracy limits cannot be established

- Recommendations for changes;
- A list of needs for continuing evaluation of management systems and for alternative methods of management; and
- Unit costs associated with carrying out the planned activities compared with unit costs estimated in the Forest Plan and Final EIS.

These resource evaluation reports will be documented in an annual evaluation report prepared by the Land Management Planning Staff. The significance of the results of the monitoring program will be analyzed and evaluated by the Forest interdisciplinary team.

Based on the evaluation, any need for further action will be recommended to the Forest Supervisor. The recommendations can include:

- No action needed; monitoring indicates goals, objectives, and standards are achieved;
- Refer recommended action to the appropriate line officer for improved application of management plan direction;
- Modify standards and guidelines or change allocation of prescriptions in the form of a Plan amendment (refer to Chapter 1 for more information on amendments and revisions);
- Revise the projected schedule of outputs; or
- Initiate revision of the Plan.

The Forest Supervisor will then recommend or make Plan modifications and/or revisions in accordance with the National Environmental Policy Act (NEPA).

Table 5-I
Monitoring Action Plan

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Air Quality					
Class I air quality related value indicators	Field monitoring and laboratory testing	State and local (Clean Air Act)	On-going	Some high; some low	Not applicable
Smoke Management					
Determine effect of prescribed fire on air quality	Measure smoke dispersal in accordance with approved smoke management plans	Forest standards and guidelines and Federal, State and local air quality standards	Selected projects/annually	Moderate	To be determined in cooperation with local Air Pollution Control Districts
Biological Diversity (Also refer to Wildlife)					
Evenness					
Provide for relative abundance and distribution of habitats and habitat attributes	Do selected site/landscape unit analysis and compare with capability and other models	Minimum of 10 percent random sample of selected sites (some project)	5/5	Moderate	10 percent variation from established standards
Seral stage distribution by Management Area (MA)	Survey vegetation diversity in conjunction with timber inventory, compartment and stand exams, project environmental analyses, and project reviews	Regional Guide and Forest standards and guidelines	Annually on a sample of projects with the potential to affect vegetation diversity	Moderate	10 percent reduction from levels identified in MA direction
Richness					
Provide for continued viable populations of all existing plant and animal species	Verify existence of selected species of plants and animals through surveys and inventories	Minimum of 10 percent random sample of select project sites; Forest standards and guidelines	5/5	Moderate	10 percent or greater estimated reduction in species and/or species groups

* Frequency of Measurement/Reporting, where the first number refers to the years between measurement, and the second refers to years between reporting.

Table 5-I
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Richness (continued)					
Distribution and characteristics of snags, down logs and other special habitat attributes in each MA	Survey special habitat attributes and compare results with standards established in habitat capability models	Regional Guide and Forest standards and guidelines	Annually on one timber sale and one site preparation project on each Ranger District	Moderate	10 percent reduction from Forest or MA standards and guidelines
Meadow management by MA	Field review, project planning	Minimum of 10 percent random sample of selected project sites, Forest standards and guidelines	5/5	Moderate	10 percent variation from established standards
Hardwood management by MA	Field review and mapping, project planning	Minimum of 10 percent random sample of selected project sites, Forest standards and guidelines	5/5	Moderate	10 percent variation from established standards
Pattern					
Verify that amount of fragmentation and/or edge are not adverse to concept of viability	Do selected landscape assessment and compare with standards and guidelines and established concepts of diversity	Minimum of 10 percent random sample of selected sites (some project)	5/5	Moderate	10 percent variation from established standards
Botany					
Evaluate Forest plant communities for botanical diversity and health including threatened, endangered and sensitive (TE&S) plants	Data obtained from plant surveys, ecological inventory data, Natural Diversity Data Base (NDDB) reports, scientific literature	Forest standards and guidelines, species management guides, Forest Service Manual (FSM) 2670	1/1	High	Significant decrease in botanical diversity, including species richness and density; decrease in population of TE&S plants in numbers, vigor or distribution that may affect long-term viability of the species

Table 5-1
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Botany (continued)					
Implementation and effectiveness of mitigation measures designed to protect sensitive plants	Management guidelines from within the Forest Service (FS), interagency documents, horticultural and scientific literature	Forest Plan objectives for biodiversity and forest health	Project by project basis/1	High	Mitigation efforts do not result in attaining objective
Restore habitats which have been degraded; monitor the effects of restoration projects	Management guidelines from within the FS, interagency documents, horticultural and scientific literature	Forest Plan objectives for biodiversity and forest health	Project by project basis/1	High	Restoration efforts unsuccessful
Heritage Resources					
Investigate disturbances of Native American religious/sacred places	Field observations, consultations withNative Americans, project planning	100 percent	Case by case	Moderate	Not applicable
Investigate disturbances of Native American traditional resource areas (not religious)	Field observations, consultations with Native Americans, project planning	100 percent	Case by case	Moderate	Not applicable
Check adequacy of site protection measures	Post-sale timber sale inspections, field observations	Check 10 percent of sites annually	1/2	Moderate	Not applicable
Determine thoroughness of field identification of sites; datum tagging	Field observations	Check 10 percent of sites annually	1/2	High	10 percent site improperly identified

Table 5-1
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Economics					
Planning, programming and budgeting					
Actual costs versus projected costs of implementing Forest Plan budget	PAMARS	Average annual budget projections	1/1	High	10 percent of projected costs
Facilities					
Road maintenance	Field review	Regulations and Forest standards	1/1	Moderate	10 percent increase in traffic over 5 years, unacceptable erosion or safety factors
Traffic surveillance and accident reporting	Field review	Regional Standards	1/1	Moderate	Not Applicable
Road density (construction and/or open to public)	Field and plan/project review	Forest standards	On-going	High	Not Applicable
Fire and Fuels					
Targets for fuel treatment maintenance, and fuelbreak construction and maintenance	Field review	Regulations and Forest standards are met where appropriate	1/1	High	>10 percent of target
Use of prescribed fire in fuel and vegetation management	Burn plans and field review	Regulations and Forest standards	On-going	High	Failure to follow approved plan; conflict with other programs

Table 5-1
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Fisheries					
Riparian habitat condition goals	Use the most appropriate state-of-the-art technique for each habitat condition attribute to be measured within selected watersheds*	Prescription IX management direction; Forest standards and guidelines	1/5	Moderate-high	Significant decrease in viability of riparian habitats
	* These watersheds to be identified. Two preferences could be the Butter Creek and South Fork Sacramento River drainages.				
Macroinvertebrates	Substrate sampling and analysis to (1) establish indicators of water quality, and (2) collect prey base information in three index streams*	Prescription IX management direction plus develop index of relative abundance	2/5	Moderate - high	Significant deviation from acceptable levels
	* These streams to be identified.				
Anadromous fish population surveys	Snorkeling of five long term index streams for sensitive species; three long term index streams for non-sensitive species	Direct observation counts of returning adults	1/1	Moderate	Less than 200 spawners of each known species per stream or establish acceptable levels of deviation
Juvenile steelhead densities	Electrofishing of six long term index streams	Estimating total number of fish within established reaches using removal method	1/1	Moderate	Significant population deviation from acceptable levels or a 10-year trend indicating significant decline in fish numbers
Redband trout population survey	Snorkeling of Trout Creek	Direct observation counts of young-of-the-year and older fish	1/1	Moderate - high	Significant population deviation from acceptable levels

Table 5-I
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Fisheries (continued)					
Inland coldwater fish population surveys	Snorkeling of three long-term index streams*	Direct observation counts of young-of-the-year and older fish	1/1	Moderate - high	Significant population deviation from acceptable levels
* These streams to be identified. Preference would be Upper McCloud River, Squaw Creek, and Squaw Valley Creek.					
Instream fish habitat improvement structures	Snorkeling/habitat mapping and photo point comparison of three long-term index streams*	Direct observation assessments of installed instream structures	3/5 - snorkeling; 3/5 - habitat mapping; 3/5 - photo point comparison	High	A structure has less than 70 percent effectiveness or has failed completely
* These streams to be identified after fish habitat improvement projects are undertaken within inland coldwater fish streams.					
Warmwater fish habitat improvement structures	Snorkeling and diving with visual verification of fish use and magnitude at Shasta and Trinity Lakes	Direct observation counts of young-of-the-year and older fish	2/5	High	Significant population deviation from acceptable levels or a 10-year trend indicating significant decline in fish numbers
Forest Pests					
Forest pest activity levels (especially where they conflict with management objectives)	Review project level plans for inclusion of possible pest effects	Regional standards; selected project plans	1/2	Moderate	>10 percent of project plans fail to consider pests
Lands					
Effect of land exchanges on total Forest timber land base and inventory	Determine net change in acres and inventory for each land exchange	Current suitable acres and timber inventory	Annually, as changes occur	High	5 percent of acres and/or inventory

Table 5-1
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Minerals					
Mineral activities	Field review of operating plans	To agree to methods of operation and reclamation	Quarterly during operating period	High	Non-compliance with operating plan
Range					
Number of animal months (AMs)	Annual grazing statistical report	Annual Range Report	1/1	High	10 percent of annual targets (in AMs)
Range readiness and utilization production check on allotments	Range management handbook and analysis	Check selected allotments each year	1/2	Moderate	Use >50 percent site production trend is downward
Range improvement (structural/non-structural)	Annual range report	Acres / Sites	1/1	High	Less than 90 percent of assigned targets achieved
Allotment management plans being administered and followed properly	Check of plan and application on the ground	Check selected allotments/annually	1/5	High	>10 percent variance from allotment plan
Recreation					
Implementation of Recreation Opportunity Spectrum (ROS)	Recreation activity reviews, project planning, results of field reviews	Forest Service and Regional review standards	3/3	Moderate	10 percent variation in ROS classification
Determine if recreation management direction meets expectations of visitors	Public involvement for periodic reviews, response forms, letters, informal discussions, State comprehensive outdoor recreation plan, customer surveys	Forest Service and Regional ROS standards	5/5	Moderate	20 percent variation in expectations of recreation visitors

Table 5-I
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Recreation (continued)					
Determine if critical recreation resource attributes for each ROS class are protected from degradation	Recreation activity reviews, project planning, field reviews	Forest Service and Regional ROS standards	3/3	High	10 percent variation from standards established in Forest Plan
Determine if actual use compares with projections	Reviews District and Forest-wide recreation reports double counting or other technique	Regional planning handbook standards	1/2	Moderate	15 percent variation in use in 5-year period
Condition of developed sites	Reviews condition reports, Recreation Resource Information System (RRIS)	Forest Service, Regional and Forest standards	1/1	High	10 percent variation from standards established in Forest Plan
Recreation management and facility costs	Reviews facility condition reports, RRIS system	Forest Service, Regional and Forest standards	1/2	High	10 percent variation in costs
Determine effectiveness of off-highway vehicle plan in protecting Forest resources	Recreation activity reviews, project planning, results of field reviews	Forest Service and Regional review standards	1/1	Moderate	10 percent variation from standards established in Forest Plan

Table 5-I
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Soils and Water					
Cumulative impacts on stream channel condition and water quality	Forest soil resource inventory and geologic resource inventory maps and interpretation, U.S. Geological Survey procedures for peak flow determinations, management history atlas, aerial photos, stream channel stability surveys, stream channel cross-sections, photo and video points, stream reach mapping, and watershed trend analysis	Forest standards and guidelines	1/2	Moderate	Exceeding watershed threshold levels or evidence of channel degradation
Implementation of best management practices (BMPs)	Environmental analyses; interdisciplinary team (ID) meetings; timber sale, project and other contracts; road design plans; timber sale and project folders; and personal contacts with planners and contract administrators	BMPs identified as project mitigation requirements; Forest-wide standards and guidelines; water quality objectives for beneficial uses	1/1	High	Needed water quality (WQ) mitigation measures are missing from any project. WQ objectives violated. Field review identifies mitigation measures are not being implemented
BMPs, monitoring for effectiveness of BMPs for the protection of water quality, riparian areas, soil erosion, and slope stability	Water quality parameter monitoring in affected streams, paired watershed studies, monitoring of beneficial uses, site-specific soil erosion monitoring, slope stability site monitoring	State objectives (Clean Water Act)Regional soil quality standards for soil cover, porosity and organic matter	1/2	Moderate - High	State water quality standards exceeded; soil quality standards not met; riparian areas unacceptably degraded, and slope instability accelerated

Table 5-I
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Soils and Water (continued)					
Soil productivity	Forest resource management, environmental analyses and field measurements of soil parameters relating to soil productivity	Forest soil quality standards	1/2	Moderate	Review of assessments or plans indicates possible degradation of soil productivity; field measurements show soil productivity degradation or failure to meet standards
Timber					
Determine if timber sold meets the allowable sale quantity (ASQ) level for the 10-year period	Timber management control record and report	Forest standards; 100 percent sample	1/5	High	Failure to meet Forest Plan ASQ objective by 10 percent
Determine if regeneration harvest areas are adequately restocked with an appropriate species mix within five years	Survival examinations, plantation surveys	Regional and Forest standards; 100 percent sample	1/3	High	Fifth year survival does not meet minimum stocking standards on more than 15 percent of the acres
Determine if reforestation and timber stand improvement goals are met	Silvicultural accomplishment report	Regional and Forest standards; 100 percent sample	1/5	High	Failure to meet Forest Plan objectives by 25 percent
Determine if lands classified as suitable for timber production are not suitable and vice versa	Environmental analyses, administrative reviews of all timber sales	Forest standards	10/10	Moderate	A five percent departure from current suitability classification

Table 5-1
Monitoring Action Plan (continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Timber (continued)					
Determine if growth and yield projections anticipated through intensive timber management practices are occurring as planned in regenerated stands	Timber inventory of plantations	Regional and Forest standards	10/10	Moderate	Unacceptable results of an ID team review
Visual Quality					
Determine if visual resource management (VRM) standards are being followed, and visual quality objectives (VQOs) are being met	Field reviews and project planning, photo points, environmental analyses	Regulations; Forest standards	2/3	Moderate	10 percent variation from standards established in the Forest Plan
Determine if VRM guidelines are reliable	Field review, photos, project planning	To be developed	3/3	Moderate	25 percent variation from VRM guidelines
Determine trend of visual character	Field observations, photos, Vegetation Management Manual Vol 2, "Timber", and statistical comparison	National Forest Landscape Management Manual Vol 2, "Timber"	5/5	Moderate	10 percent variation from established visual trends
Verify sensitivity levels	Monitor traffic and visually verify counters, field observations, project planning	100 percent observation of sensitive travel routes	1/3	Moderate	Not applicable
Visual resource rehabilitation/improvement	Field review, photos, project planning; determine if the Forests' interpretative schedule meets management needs and expectations of visitors	To be developed	1/3	Not applicable	25 percent variation from approved plans

Table 5-I
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Visual Quality (continued)					
Visual resource rehabilitation/improvement (continued)	Observation, questionnaires, interaction	To be developed	2/2	Moderate	30 percent variation from established objectives
Wild and Scenic Rivers					
Monitor attributes	Field review, photos, public contact	Legislative criteria for designation	5/5	Moderate	Not applicable
Wilderness and Roadless Areas					
Determine if carrying capacities are being exceeded	Permits, surveys,activity reviews	To be developed	1/5	Moderate	25 percent variation in carrying capacities
Determine trends of wilderness attributes as affected by natural and human-caused events	Photo points, field review	To be developed	1/3	Moderate	25 percent variation from established standards
Wildlife					
Implementation monitoring to ensure that management requirements and standards and guidelines are being met or exceeded with on-the-ground activities; with emphasis on snags and down log management	Reconnaissance by sale administrators and other project representatives; management reviews; inventory	100 percent or greater of Regional Guide and Forest standards and guidelines	On-going/2 years	High	5 percent variation from standards

Table 5-1
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Wildlife (continued)					
Effectiveness monitoring of management indicator assemblage populations: late seral stage, openings and early seral stage, multi-habitat, snag and down log, riparian, aquatic, hardwoods, and cliffs, caves, talus and rock outcrop assemblages	Use appropriate indicator species or habitat components to represent the assemblages. Survey for occupancy, reproductive success, population stability and growth, ecological health. Compare with wildlife habitat relationships data base models	Random sample of 10 percent of landscape analysis area	1-5/5	Moderate	Detection of population decrease or reproductive failure
Validation to determine if changes are needed in management practices and standards and guidelines to provide adequate protection of wildlife	An analysis of management requirements and standards and guidelines implementation integrated with analysis of management indicator assemblage population changes	Regional and Forest standards; wildlife habitat relationships data base models	10/10	Moderate	5 percent variation from standards
Implementation of acres and structures for habitat improvement, protection and rehabilitation	Annual Management Attainment Report and Annual Wildlife Report	100 percent tabulation of projects	1/1	High	10 percent variability in Forest goals and objectives and standards and guidelines
Implementation of management direction for Forests' share of habitat objectives in State deer herd plans	Annual Management Attainment Report and Annual Wildlife Report	100 percent tabulation of projects	1/10	Moderate	10 percent variability in Forest goals and objectives and standards and guidelines

Table 5-I
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Wildlife (continued)					
Monitor the coordination and integration of wildlife management programs with other resource programs to meet habitat or population objectives	Management reviews, integrated workshops, ID teams, budget planning	80 percent or greater of project plans should have biological input	On-going/2 years	Moderate	10 percent variation from standards
Wildlife - Threatened, Endangered and Sensitive species (TE&S)					
Bald Eagle					
Determine trends of the breeding population	Survey use and productivity of existing and potentially suitable nesting sites	Forest standards and guidelines and recovery plans	1/1	High	Reductions in breeding population that result from external conditions
Evaluate trends in habitat capability for nesting birds	Evaluate habitat conditions within nesting habitat using the variables identified in habitat capability models	Forest standards and guidelines and recovery plans	1/1	High	Reductions in habitat capability not attributable to Forest management
Goshawk					
Determine population and habitat trends	Identify and document habitat conditions in nest groves; survey habitat and determine occupancy and reproductive success	Regional guide and Forest standards and guidelines	Annually, for the sample of territories and for all projects that may modify habitat in designated territories	High	Significant decline in occupancy or reproduction. Failure to designate goshawk territories prior to implementing major habitat modification projects
Peregrine Falcon					
Verify nesting and reproductive success	Field surveys of adults and young at all known nest sites and at a sample of potential nesting habitat	Regional guide, Forest standards and guidelines and Recovery Plans	1/1	High	Reductions in breeding and reproduction that result from external conditions

Table 5-I
Monitoring Action Plan
(continued)

Activity, Practice or Effect	Techniques and/or Data Sources	Intensity and Standard	Frequency of Measurement/Reporting*	Expected Precision/ Reliability	Variability in Standard Which Would Require Further Evaluation and/or Corrective Action
Wildlife - TE&S (continued)					
Spotted Owl					
Ensure compliance of Forest projects with spotted owl standards	Review of project plans and implementation to assess compliance	Regional guide and Forest standards and guidelines	1/1	High	10 percent decline in occupied sites
Determine population and habitat condition trends	Quantify habitat characteristics and conduct direct counts of breeding pairs and fledgling success in a sample of suitable habitat	Regional guide and Forest standards and guidelines	1/1	High	10 percent decline in occupied sites
Furbearers					
Determine population and habitat trends within designated fisher and pine marten habitat	Monitor furbearer network for occurrence and amount of appropriate habitat attributes and/or special components; field review of project planning using habitat capability models	Minimum of 10 percent random sample of suitable habitats involved in individual project analyses at the compartment, management area, and/or Ranger District level	1/1	High	> 10 percent of habitats examined have more than 10 percent deficit in selected key attributes